From: <Smith.Garmon@epamail.epa.gov>
To: Ujagar Bhachu <USB@nrc.gov>
Date: Wed, Jan 17, 2001 4:33 PM
Subject: Status of REGISTRATION CERTIFICATE NR-0162-D-101-S

Ujagar:

Based on our discussion following my recent e-mail, I request that Registry of Radioactive Sealed Sources and Devices registration certificate NR-0162-D-101-S (fixed moisture density gauge/X-Z gamma positioner) remain active since ownership of the device remains with the U.S. EPA, although no longer with our facility or program. It is my understanding that the Robert S. Kerr Environmental Research Center is responsible for the payment of the certificate fee until ownership of the registration certificate is transferred to EPA Region 8, who now owns the device, or the device is sold to an outside entity, such as the Colorado School of Mines, that has an active radioactive materials license and can legally own and use the device. Please advise if this is not the present situation with this certificate.

Thank you again for your help in determining the ownership, activity and responsibility of this registration certificate and for working with us to get it inactivated. Maybe we can make arrangements to have it transferred to its rightful owners.

Garmon

Garmon Smith, CHMM
SHEM Program Manager
U.S. EPA/OR&D/NRMRL/SPRD
Robert S. Kerr Environmental Research Center
919 Kerr Research Drive, P.O. Box 1198
Ada, Oklahoma 74820
580-436-8565 E-mail: smith.garmon@epa.gov
FAX 580-436-8506

CC: <Cosby.Roger@epamail.epa.gov>, <Dawson.Helen@epama...

Mail Envelope Properties (3A660F80.ADF : 24 : 35551)

Subject: Status of REGISTRATION CERTIFICATE NR-0162-D-101-S
Creation Date: Wed, Jan 17, 2001 4:32 PM
From: <Smith.Garmon@epamail.epa.gov>

Created By: GWIA:Smith.Garmon

Recipients
Post Office TWFN_DO.twf4_po
USB (Ujagar Bhachu)

Post Office GWIA
Graham.Richardv CC
Dawson.Helen CC
Cosby.Roger CC

Domain.Post Office	Route
TWFN_DO.twf4_po	TWFN_DO.twf4_po
GWIA	GWIA:epamail.epa.gov

Files	Size	Date & Time
MESSAGE	1313	Wednesday, January 17, 2001 4:32 PM
Header	1025	

Options
Expiration Date: None
Priority: Standard
Reply Requested: No
Return Notification: None

Concealed Subject: No
Security: Standard

From: <Smith.Garmon@epamail.epa.gov>
To: Ujagar Bhachu <USB@nrc.gov>
Date: Wed, Jan 17, 2001 3:51 PM
Subject: Request For Inactivation OF REGISTRATION CERTIFICATE NR-0162-D-101-S

Ujagar:

As we have discussed previously, and I have presented in written documentation to you, the Subsurface Protection & Remediation Division (SPRD) (Robert S. Kerr Environmental Research Center) of the U.S. EPA's National Risk Management Research Laboratory has transferred a fixed moisture density gauge, manufactured in 1993 by Centurgy Technologies, to the Colorado School of Mines via U.S. EPA Region 8 for their use. This device was assigned certificate number NR-162-D-101-S by the Registry of Radioactive Sealed Sources and Devices in June, 1993. Since the SPRD no longer has ownership of this device, we request the inactivation of the registration certificate so that future license fees are no longer required of our facility.

We appreciate your help in obtaining inactivation of this certificate and ask that you contact me if you have any future issues related to this device.

Thanks,
Garmon

Garmon Smith, CHMM
SHEM Program Manager
U.S. EPA/OR&D/NRMRL/SPRD
Robert S. Kerr Environmental Research Center
919 Kerr Research Drive, P.O. Box 1198
Ada, Oklahoma 74820
580-436-8565 E-mail: smith.garmon@epa.gov
FAX 580-436-8506

Mail Envelope Properties (3A6605C5.922 : 4 : 35106)

Subject:	Request For Inactivation OF REGISTRATION CERTIFICATE NR-0162-D-101-S
Creation Date:	Wed, Jan 17, 2001 3:49 PM
From:	<Smith.Garmon@epamail.epa.gov>
Created By:	GWIA:Smith.Garmon

Recipients
Post Office TWFN_DO.twf4_po
USB (Ujagar Bhachu)

Domain.Post Office	**Route**
TWFN_DO.twf4_po	TWFN_DO.twf4_po

Files	**Size**	**Date & Time**
MESSAGE	1147	Wednesday, January 17, 2001 3:49 PM
Header	938	

Options

Expiration Date:	None
Priority:	Standard
Reply Requested:	No
Return Notification:	None
Concealed Subject:	No
Security:	Standard

Mr. Gammon B. Smith
Radiation Safety Officer
U. S. Environment Protection Agency
Robert S. Kerr Environment Research Laboratory
P.O. Box 1198
Ada, Oklahoma 74820

January 17, 2001

Subject: NOTIFICATION OF DISCONTINUATION OF SEALED SOURCE AND DEVICE INACTIVATION

Dear Mr. Smith:

This letter is in reference to U.S. Environmental Protection Agency's (USEPA) application, dated June 15, 2000, requesting inactivation of custom sealed source and device registration certificate No. NR-162-D-101-S, for Fixed Moisture Density Gauge. By a letter dated December 11, 2000, and subsequent telephone calls with NRC staff, USEPA retracted its request to inactivate the referenced registration certificate. Accordingly, we have discontinued the review of your request.

Please note that this device must only be used for the purposes authorized and in accordance with the statements and representations contained in the application submitted by USEPA with enclosures thereto, and the information set out in the registration certificate. As a general rule, you must request and obtain an amendment to the certificate before you make changes or modifications to the information submitted to obtain the registration certificate. You are obligated to notify us promptly in writing should you decide to permanently transfer the title or relocate or dispose of this device.

Please be aware that, as a holder of an NRC registration, you may be subject to the NRC's licensing fees in accordance with 10 CFR Part 170, and annual fees in accordance with 10 CFR Part 171. If you have any questions concerning the fee requirements, please contact the License Fee and Debt Collection Branch at (301) 415-6096.

If you have any questions, please contact me at (301) 415-7894.

Sincerely,

/RA/

Ujagar S. Bhachu, Mechanical Engineer
Materials Safety and Inspection Branch
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards

cc. SKimberley, LFDCB

Distribution:
IMNS r/f SSD 00-46 NMSS Public 002

DOCUMENT NAME:
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OFFICE	MSIB	C	MSIB	C					
NAME	USBhachu		J Jankovich						
DATE	01/17/01		01/17/01						

OFFICIAL RECORD COPY

NRC FORM 567
(1-1999)

U.S. NUCLEAR REGULATORY COMMISSION

REQUEST FOR A SEALED SOURCE OR DEVICE EVALUATION

INSTRUCTIONS: Send this rerquest AND a copy of all related letters/applications and drawings to the Chief, Sealed Source Safety Section, OWFN Mail Stop O-6 H3. Change the License Tracking System milestone to 19 and assign to reviewer code 1-5.
NOTE: Retain a copy of this request with the application and background files.

REQUESTER
US Environmental Protection Agency

TELEPHONE NUMBER | DATE

NAME OF APPLICANT
Garmon Smith

MAIL CONTROL NUMBER(S)

LETTER/APPLICATION DATE: **06/15/2000** | LICENSE NUMBER(S)

REGION/LOCATION:
☐ I ☐ II ☐ III ☐ IV ☐ HQ ☐ LFARB

TYPE OF ACTION REQUESTED *(Check as appropriate)*
☐ SOURCE REVIEW
☐ DEVICE REVIEW
☐ CUSTOM REVIEW
☑ AMENDMENT OF REGISTRATION SHEET NUMBER(S) **NR-162-D-101-S**

COMMENTS:
P.O. Box 1198
Ada, OK 74820

FOR SSSS USE ONLY

REVIEWER	MODEL NUMBERS	NUMBER ASSIGNED
J. Jankovich	**EPA91197**	**00-46**
DATE RECEIVED	**DATE ASSIGNED**	**DATE TO FEES**
11/01/2000	**11/01/2000**	**11/01/2000**

TYPE OF ACTION *(Indicate the number of each type)*

☑ COMMERCIAL DISTRIBUTION (FORMAL) ☐ USE BY A SINGLE APPLICANT (CUSTOM)

SOURCE (9C)	DEVICE (9A)	SOURCE (9D)	DEVICE (9B)
☐ NEW	☐ NEW	☐ NEW	☐ NEW
☐ AMENDMENT	☑ AMENDMENT	☐ AMENDMENT	☐ AMENDMENT

☐ NO SAFETY EVALUATION REQUIRED
NO FEES REQUIRED

☐ LICENSING ACTION REQUIRED (IF KNOWN) ☐ YES ☐ NO

☐ OTHER *(Specify)*

TOTAL NUMBER OF REVIEW HOURS	NOTES: **Request to make NR-162-D-101-S inactive.**
NUMBER OF DEFICIENCY LETTERS	
NUMBER OF DEFICIENCY CALLS	

FOR FEE USE ONLY

TYPE OF FEE: fee Exempt | FEE CATEGORY: ☐ 9A ☐ 9B ☐ 9C ☐ 9D

AMOUNT RECEIVED | CHECK NUMBER | DATE OF CHECK | LOG: Mail 3550D

APPROVED BY: Termination | DATE OF RETURN

COMMENTS: AL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
SUBSURFACE PROTECTION AND REMEDIATION DIVISION
P.O. BOX 1198 • ADA, OK 74820

June 15, 2000

OFFICE OF
RESEARCH AND DEVELOPMENT

U.S. Nuclear Regulatory Commission
Materials Safety and Inspection Branch
Division of Industrial and Medical Nuclear Safety
Office of Nuclear Material Safety and Safeguards
Washington, DC 20555

SUBJECT: Source registration #NR0162D101S

Dear Sirs:

In December, 1999 we transferred to the Colorado School of Mines, Golden, Colorado (materials license #Colorado627-01, Amendment #29), a Centergy Technologies, Inc. fixed moisture density gauge. This gauge contained two radioactive sources, a Cesium-137 gamma source and an Americium-241 neutron source contained within a source shield component. The installation and use of this density gauge constituted the issuance of the registration referred to above. At this time we wish to request inactivation of this registration so that fees are no longer charged for an instrument containing radioactive sources we no longer possess. We understand that due to this late request for inactivation within this fiscal year, we are required to pay the present invoice due this month. Payment of the invoice has been initiated through our facility's financial office.

AS

If there is any additional information required to inactivate this registration, please contact me at 580-436-8565 or via e-mail at smith.garmon@epa.gov. Please provide notification of registration inactivation when it becomes effective. Thank you for your prompt consideration and time to this request.

Sincerely,

Garmon B. Smith, RSO
Technical & Administrative Support Staff

cc: Sandra Kimberly
U.S. Nuclear Regulatory Commission
MST-9E10
Washington, DC 20555

NMSS/02 prop

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

Mr. Gammon B. Smith
Radiation Safety Officer
U.S. Environment Protection Agency
Robert S. Kerr Environment Research Laboratory
P.O. Box 1198
Ada, Oklahoma 74820

January 17, 2001

Subject: NOTIFICATION OF DISCONTINUATION OF SEALED SOURCE AND DEVICE INACTIVATION

Dear Mr. Smith:

This letter is in reference to U.S. Environmental Protection Agency's (USEPA) application, dated June 15, 2000, requesting inactivation of custom sealed source and device registration certificate No. NR-162-D-101-S, for Fixed Moisture Density Gauge. By a letter dated December 11, 2000, and subsequent telephone calls with NRC staff, USEPA retracted its request to inactivate the referenced registration certificate. Accordingly, we have discontinued the review of your request.

Please note that this device must only be used for the purposes authorized and in accordance with the statements and representations contained in the application submitted by USEPA with enclosures thereto, and the information set out in the registration certificate. As a general rule, you must request and obtain an amendment to the certificate before you make changes or modifications to the information submitted to obtain the registration certificate. You are obligated to notify us promptly in writing should you decide to permanently transfer the title or relocate or dispose of this device.

Please be aware that, as a holder of an NRC registration, you may be subject to the NRC's licensing fees in accordance with 10 CFR Part 170, and annual fees in accordance with 10 CFR Part 171. If you have any questions concerning the fee requirements, please contact the License Fee and Debt Collection Branch at (301) 415-6096.

If you have any questions, please contact me at (301) 415-7894.

Sincerely,

Ujagar S. Bhachu, Mechanical Engineer
Materials Safety and Inspection Branch
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards

cc. SKimberley, LFDCB

Mr. Gammon B. Smith
Radiation Safety Officer
U. S. Environment Protection Agency
Robert S. Kerr Environment Research Laboratory
P.O. Box 1198
Ada, Oklahoma 74820

January 17, 2001

Subject: NOTIFICATION OF DISCONTINUATION OF SEALED SOURCE AND DEVICE INACTIVATION

Dear Mr. Smith:

This letter is in reference to U.S. Environmental Protection Agency's (USEPA) application, dated June 15, 2000, requesting inactivation of custom sealed source and device registration certificate No. NR-162-D-101-S, for Fixed Moisture Density Gauge. By a letter dated December 11, 2000, and subsequent telephone calls with NRC staff, USEPA retracted its request to inactivate the referenced registration certificate. Accordingly, we have discontinued the review of your request.

Please note that this device must only be used for the purposes authorized and in accordance with the statements and representations contained in the application submitted by USEPA with enclosures thereto, and the information set out in the registration certificate. As a general rule, you must request and obtain an amendment to the certificate before you make changes or modifications to the information submitted to obtain the registration certificate. You are obligated to notify us promptly in writing should you decide to permanently transfer the title or relocate or dispose of this device.

Please be aware that, as a holder of an NRC registration, you may be subject to the NRC's licensing fees in accordance with 10 CFR Part 170, and annual fees in accordance with 10 CFR Part 171. If you have any questions concerning the fee requirements, please contact the License Fee and Debt Collection Branch at (301) 415-6096.

If you have any questions, please contact me at (301) 415-7894.

Sincerely,

Ujagar S. Bhachu, Mechanical Engineer
Materials Safety and Inspection Branch
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards

cc. SKimberley, LFDCB

Distribution:
IMNS r/f SSD 00-46 NMSS Public 002

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OFFICE	MSIB	C	MSIB	C					
NAME	USBhachu		J Jankovich						
DATE	01/17/01		01/17/01						

OFFICIAL RECORD COPY

From: Ujagar Bhachu 01/10/01
To: Sandra Kimberley
Date: Wed, Jan 10, 2001 10:59 AM
Subject: Re: REF: INACTIVATION -TRANSFER of SS&D Registration Certificate

Hi Sandra: Yes, your understanding is correct. US EPA, ADA, OK., request for inactivation of the registration certificate NR-0162-D-101-S is inappropriate. The scenario presented by the commercial understanding reached by the concerned parties constitutes a transfer of use and custody of the device, and not a transfer to inactive status of registration. We have discontinued processing US EPA's request for inactivation. SS&D case 00-46 will be closed out.

Ujagar S. Bhachu

>>> Sandra Kimberley 01/10 8:05 AM >>>
Hi Ugagar

Am I understanding correctly from your message that the registration is still active and is considered to be under EPA's name (until such time as their contract is up and they apply for inactivation again)?

Thanks, Sandy

>>> Ujagar Bhachu 01/09 3:49 PM >>>

Hi LINDA:

U.S. Environmental Protection Agency , Ada, OK, in a letter dated June 15, 2000, requested U.S. NRC , Materials Safety and Inspection Branch, to inactivate the registration certificate number NR-0162-D-101-S, for the purpose of eliminating the payment of the registration fee. U.S. EPA, Ada , OK, having reconsidered their future needs and plans, requested NRC, on December 1, 2000, not to inactivate the registration certificate.

Registration certificated NR-0162-D-101, dated June 30, 1993 was issued on June 30, 1993. This device, a Fixed Moisture Density Gauge, containing Cesium-137, and Americium -241, was evaluated and registered as a custom device. Custom users are specifically identified on the first page of the registration certificate. The custom user is required to meet all commitments made in the application and the registration certificate. Typically, no more than two different NRC or Agreement State licensees may be custom users of, and may register, the same product.

As we understand the use of this device, U.S. EPA, Denver, CO, entered on August 18, 1999, in to a revocable 5 year, use, lease agreement with Colorado School of Mines, Golden, Colorado. The gamma source shield component (containing Cs-137 and Am-241) were shipped from U.S. EPA, Ada, OK, facility on January 12, 2000, via Federal Express and received by Colorado School Of Mines, Golden, CO on January 13, 2000. The custody of the gamma gauge was transferred from U.S. EPA,, Ada, OK, to U. S. EPA, CO. The transfer custodial papers for the gamma gauge were completed on February 23, 2000.

Furthermore, we understand from the representatives of the U. S. EPA , ADA, OK, that State of Colorado has not issued a registration certificate for this custom product and that it is your practice only to issue registrations for new devices developed or obtained under a Colorado Radioactive Material License.

We further understand that NRC, Region IV has deleted this device from the license of U.S. EPA, ADA, OK, and the State of Colorado has amended Colorado School of Mines license to include the possession and use of the product radioactive isotopes.

In view of the foregoing, and as discussed with you over the telephone please ensure that:

1. the user, Colorado School of Mines, Golden Colorado, has a copy of and conducts its programs in accordance with the commitments made in the referenced documents listed in the NRC license number 35-11581-02, issued by NRC, Region IV regarding this device.

2. applicant and/or user understand the need to properly store, transfer/dispose of the gamma gauge at the end or termination of the five year lease.

If you have any questions please contact me on 301-415-7894.

Ujagar S. Bhachu.

CC: Frederick Sturz, John Jankovich, Traci Kime

01/10/01

UB 01.10.01

From: Ujagar Bhachu
To: INternet: lindamartin@state.Co.US.
Date: Tue, Jan 9, 2001 3:49 PM
Subject: REF: INACTIVATION -TRANSFER of SS&D Registration Certificate

Hi LINDA:

U.S. Environmental Protection Agency , Ada, OK, in a letter dated June 15, 2000, requested U.S. NRC , Materials Safety and Inspection Branch, to inactivate the registration certificate number NR-0162-D-101-S, for the purpose of eliminating the payment of the registration fee. U.S. EPA, Ada , OK, having reconsidered their future needs and plans, requested NRC, on December 1, 2000, not to inactivate the registration certificate.

Registration certificated NR-0162-D-101, dated June 30, 1993 was issued on June 30, 1993. This device, a Fixed Moisture Density Gauge, containing Cesium-137, and Americium -241, was evaluated and registered as a custom device. Custom users are specifically identified on the first page of the registration certificate. The custom user is required to meet all commitments made in the application and the registration certificate. Typically, no more than two different NRC or Agreement State licensees may be custom users of, and may register, the same product.

As we understand the use of this device, U.S. EPA, Denver, CO, entered on August 18, 1999, in to a revocable 5 year, use, lease agreement with Colorado School of Mines, Golden, Colorado. The gamma source shield component (containing Cs-137 and Am-241) were shipped from U.S. EPA, Ada, OK, facility on January 12, 2000, via Federal Express and received by Colorado School Of Mines, Golden, CO on January 13, 2000. The custody of the gamma gauge was transferred from U.S. EPA,, Ada, OK, to U. S. EPA, CO. The transfer custodial papers for the gamma gauge were completed on February 23, 2000.

Furthermore, we understand from the representatives of the U. S. EPA , ADA, OK, that State of Colorado has not issued a registration certificate for this custom product and that it is your practice only to issue registrations for new devices developed or obtained under a Colorado Radioactive Material License.

We further understand that NRC, Region IV has deleted this device from the license of U.S. EPA, ADA, OK, and the State of Colorado has amended Colorado School of Mines license to include the possession and use of the product radioactive isotopes.

In view of the foregoing, and as discussed with you over the telephone please ensure that:

1. the user, Colorado School of Mines, Golden Colorado, has a copy of and conducts its programs in accordance with the commitments made in the referenced documents listed in the NRC license number 35-11581-02, issued by NRC, Region IV regarding this device.

2. applicant and/or user understand the need to properly store,transfer/dispose of the gamma gauge at the end or termination of the five year lease.

If you have any questions please contact me on 301-415-7894.

Ujagar S. Bhachu.

CC: Frederick Sturz, John Hickey, John Jankovich, L...

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
SUBSURFACE PROTECTION AND REMEDIATION DIVISION
P.O. BOX 1198 • ADA, OK 74820

December 11, 2000

OFFICE OF
RESEARCH AND DEVELOPMENT

Mr. Ujagar Bhachu
U.S. Nuclear Regulatory Commission
Materials Safety and Inspection Branch
Division of Industrial and Medical Nuclear Safety
Two White Flint North, Mail Stop T8F5
11545 Rockville Pike
Rockville, MD 20852

SUBJECT: Inactivation of Registration Certificate NR-0162-D-101-S

Dear Mr. Bhachu:

In a letter dated June 15, 2000 to the U.S. NRC Office of Nuclear Material Safety and Safeguards I requested the inactivation of the registration certificate listed above, for the purpose of eliminating the payment of fees for the registration. Since this registration was issued for a fixed moisture density gauge specifically designed for our use, and then transferred to the Colorado School of Mines via U.S. EPA Region 8 for their use, it seems somewhat inappropriate to **inactivate** the registration. Based on my reading of Section 13.4 of NRC report NUREG 1556 Volume 3, the scenario presented above constitutes a transfer of **use** of said registration and not a transfer to inactive status as the regulations address. The points of Section 13.4 as addressed are (1) there was only one product manufactured and sold and it is still proposed for future use (at Colorado School of Mines); (2) no services are provided by the U.S. EPA Robert S. Kerr Environmental Research Center, Ada, OK (the registration certificate holder) although the manufacturer Centergy Technologies may still provide services; (3) this particular product was never commercially distributed; and (4) the U.S. EPA, Ada, OK verifies that no changes were made to the product since its initial registration up to the time it was transferred to U.S. EPA Region 8, Denver, CO.

Enclosed are several documents addressing the issues that you raised in your e-mail of November 15, 2000 concerning transfer of the moisture density gauge (x-z gamma positioner) to which this registration certificate is associated. **Attachment #1** is a copy of the U.S. EPA's Robert S. Kerr Environmental Research Center's NRC materials license, Amendment No. 13, dated July 29, 1993, which includes the Sealed Source and Device Registry Sheet No. NR-162-D-101-S along with details of the system hardware and operation/maintenance requirements for the fixed moisture density gauge. **Attachment #2** is a copy of a faxed copy of the State of Colorado Department of Public Health and Environment Radioactive Materials License for the Colorado School of Mines, License No. Colo. 627-01 dated November 17, 1999. The gamma source shield component (contains Cs-137 and Am-241 sources) was shipped from our facility on January 12, 2000 via Federal Express and received by Colorado School of Mines, Golden, CO on January 13, 2000. The materials license shows items LLLL and MMMM added to cover the

sealed sources contained in the moisture density gauge. Further information concerning the Colorado School of Mines materials license can be obtained from Robert MacPherson, Radiation Safety Officer, at 303-273-3573. **Attachment #3** is a copy of a fax received from AEA Technology providing copies of the Certificate of Approval of Design for Special Form Radioactive Material for the two sealed sources used in the moisture density gauge. The descriptions hi-lighted match those on the Colorado School of Mines' materials license. **Attachment #4** is a copy of a faxed copy from Helen Dawson, U.S. EPA Region VIII, Denver, CO, of the revocable license agreement between the U.S. EPA Region VIII and Dr. Tissa Illangasekare of the Colorado School of Mines. The agreement shows the EPA property that has been made available to Dr. Illangasekare for his research use at the Colorado School of Mines, including Item No. 1, which is the X-Z Gamma Positioner (fixed moisture density gauge). Helen Dawson is the EPA Custodial Officer for the property included in the above mentioned revocable license agreement. **Attachment #5** is a copy of the U.S. EPA Form 1700-7 Property Receipt and Transfer Document indicating the transfer of the x-z gamma positioner from Accountable Area 05 custodial area 228 (Ada, OK) to Accountable Area 18 custodial area 800 (EPA Region 8). This document transfer was completed on February 23, 2000.

Based on a telephone conversation with Linda Martin, State of Colorado Department of Public Health and Environment, the state of Colorado has not issued a registration certificate for this custom product. She indicated that Colorado only issues registrations for new devices developed or obtained under a Colorado Radioactive Materials License. She indicated that this existing instrumentation should maintain the same registration certificate and it would be up to the NRC to make any required changes in the registration. Please contact her at 303-692-3030 if you need additional information.

692-3036 JACQUE JACOBI

I believe that I have addressed all the issues that you raised in the e-mail of November 15, 2000 and look forward to a resolution to our original payment issue. If you need any additional information, please contact me at 580-436-8565 or by e-mail at smith.garmon@epa.gov.

Sincerely,

Garmon B. Smith, Jr.
Radiation Safety Officer

Attachments

cc: Roger Cosby wo/attachments
Stephen Schmelling wo/attachments

817-850-8199

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

Attachment #1

JUL 29 1993

U.S. Environmental Protection Agency
Robert S. Kerr Environmental Research
Laboratory
ATTN: Clinton W. Hall, Director
P.O. Box 1198
Ada, Oklahoma 74820

Gentlemen:

Please find enclosed Amendment No. 13 to your NRC material license. You should review this amendment carefully and be sure that you understand all conditions. If you have any questions, you may contact the reviewer who signed your license amendment at 817/860-8100.

NOTE: In accordance with the enclosed Sealed Source and Device Registry Sheet No. NR-162-D-101-S issued on June 30, 1993, and NRC regulations the following must be accomplished.

- This device will be installed and initially tested for external radiation levels (source exposed, source shielded) by the U.S. Environmental Protection Agency or other persons authorized by a specific license.
- The finished device will be tested to be certain it meets the device criteria for radiation protection. External radiation levels will be tested after the initial installation of the sources to confirm that the computer predictions were accurate (less than 1 mR/hour at the surface of the device, except at the beam port). If the radiation levels exceed acceptable doses, the two sources will be returned to their shipping containers. NRC should be notified of any variances in radiation levels.
- Records of surveys shall be maintained for inspection by the Commission.

Please be advised that you must conduct your program involving radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.

AUG 2 1993

2. Possess radioactive material only in the quantity and form indicated in your license.

3. Use radioactive material only for the purpose(s) indicated in your license.

4. Notify NRC in writing of any change in mailing address (no fee required if the location of radioactive material remains the same).

5. Request and obtain written NRC consent before transferring your license or any right thereunder, either voluntarily or involuntarily, directly or indirectly, through transfer of control of your license to any person or entity. A transfer of control of your license includes not only a total change of ownership, but also a change in the controlling interest in your company whether it is a corporation, partnership, or other entity. In addition, appropriate license amendments must be requested and obtained for any other planned changes in your facility or program that are contrary to your license or contrary to representations made in your license application, as well as supplemental correspondence thereto, which are incorporated into your license. A license fee may be charged for the amendments if you are not in a fee-exempt category.

6. Submit a complete renewal application with proper fee, or termination request at least 30 days before the expiration date on your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of radioactive material after your license expires is a violation of NRC regulations.

7. Request termination of your license if you plan to permanently discontinue activities involving radioactive material.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation; imposition of a civil penalty; or an order suspending, modifying, or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Action, 10 CFR Part 2, Appendix C. Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and

vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which the NRC expects of its licensees.

Thank you for your cooperation.

Sincerely,

Jack E. Whitten
Senior Health Physicist
Nuclear Materials Licensing Section

Enclosure:
As stated

NRC FORM 374
(10-89)

U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 13

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, ode of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore ade by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. U.S. Environmental Protection Agency Robert S. Kerr Environmental Research Laboratory 2. 919 Kerr Research Drive P.O. Box 1198 Ada, Oklahoma 74820	In accordance with letter dated July 13, 1992 3. License number 35-11581-02 is amended in its entirety to read as follows:
	4. Expiration date March 31, 1998
	5. Docket or Reference No 030-09517

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Americium-241	A. Sealed neutron sources (Parkwell Laboratories Model PL-AmBe)	A. Not to exceed 200 millicuries per source
B. Calcium-45	B. Any	B. 2 millicuries
C. Carbon-14	C. Any	C. 15 millicuries
D. Chlorine-36	D. Any	D. 2 millicuries
E. Hydrogen-3	E. Any	E. 5 millicuries
F. Iron-59	F. Any	F. 10 millicuries
G. Cesium-137	G. Sealed sources (Troxler Dwg. No. A-100602)	G. Not to exceed 5 millicuries per source
H. Cobalt-60	H. Sealed sources (Tracerlab Model R-31)	H. Not to exceed 5 millicuries per source
I. Hydrogen-3	I. Foil in detector cells	I. Not to exceed 250 millicuries per foil

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 35-11581-02
Docket or Reference number: 030-09517
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6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
J. Nickel-63	J. Foil in plated sources contained in detector cells	J. Not to exceed 15 millicuries per foil or plated source
K. Cesium-137	K. Sealed sources (Amersham Model CDC.709)	K. Not to exceed 110 millicuries per source
L. Americium-241	L. Sealed sources (Amersham Model AMC.26)	L. Not to exceed 220 millicuries per source

9. Authorized use

A. For use in soil moisture probes.
B. through F. For use in laboratory studies.
G. For use in Troxler Model 2376 moisture/density gauges for measurement of properties of materials.
H. For use in the calibration of instruments and training of personnel.
I. and J. For use in gas chromatographs for sample analysis.
J. and K. For use in Centergy Technologies, Inc. Model EPA91197 **custom** fixed moisture density gauge for determination of physical properties and chemical composition of materials.

CONDITIONS

10. A. Licensed material in Items 6.B.-6.F. and Items 6.H.-6.J. shall be used only at the licensee's facility located at the Robert S. Kerr Environmental Research Laboratory, 919 Kerr Research Drive, Ada, Oklahoma.

B. Licensed material in Items 6.A. and 6.G. may be used at temporary job sites of the licensee anywhere in the United States.

C. Licensed material in Items 6.K.and 6.L. shall be used only in Room 9 of the Robert S. Kerr Environmental Research Laboratory, 919 Kerr Research Drive, Ada, Oklahoma.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
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11. A. Licensed material shall be used by, or under the supervision of, Don Clark or Alvin Wood.

B. The Radiation Safety Officer for this license is Don A. Clark.

12. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.

B. Notwithstanding Paragraph A of this Condition, sealed sources and detector cells designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source shall be removed immediately from service

12. (Continued)

and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, ATTN: Director, Division of Radiation Safety and Safeguards. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

G. The licensee is authorized to collect leak test samples for analysis by ICN Pharmaceuticals, Inc. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

13. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in 10 CFR 20.203(a)(1), the licensee is hereby authorized to label detector cells, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols.

14. A. Maintenance, repair, cleaning, replacement, and disposal of foils contained in detector cells shall be performed only by the device manufacturer or other persons specifically authorized by the Commission or an Agreement State to perform such services.

B. Installation, initial radiation survey, relocation, removal from service, maintenance, and repair of devices containing sealed sources shall be performed by Don A. Clark, or by persons specifically licensed by the Commission or an Agreement State to perform such services. Installation, replacement, and disposal of sealed sources shall be performed only by persons specifically licensed by the Commission or an Agreement State to perform such services.

15. Each gauge shall be tested for the proper operation of the on-off mechanism and indicator, if any, at no longer than 6-month intervals or at such longer intervals as specified by the manufacturer and approved by U.S. Nuclear Regulatory Commission.

16. Prior to initial use and after installation, relocation, dismantling, alignment, or any other activity involving the source or removal of the shielding, the licensee shall assure that a radiological survey is performed to determine radiation levels in accessible areas around, above, and below the gauge with the shutter open.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
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030-09517

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16. (Continued)

This survey shall be performed only by persons authorized to perform such services by the Commission or an Agreement State. A record of the results of this survey shall be maintained for the duration of the license.

17. The licensee shall operate each gauge within the manufacturer's specified temperature and/or environmental limits such that the shielding and shutter mechanism of the source holder are not compromised.

18. The licensee shall assure that the shutter mechanism is locked in the closed position during periods when a portion of an individual's body may be subject to the direct radiation beam. The licensee shall review and modify as appropriate its "lock-out" procedures whenever a new gauge is obtained to incorporate the device manufacturer's recommendations.

19. A. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents the foil temperature from exceeding that specified by the manufacturer and approved by U.S. Nuclear Regulatory Commission.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

20. A. Each sealed source containing licensed material to be used outside of a shielded exposure device shall have a durable, legible, and visible tag permanently attached by a durable ring. The tag shall be at least 1 inch square, shall bear a conventional radiation symbol prescribed in 10 CFR 20.203(a) and a minimum of the following instructions: DANGER - RADIOACTIVE MATERIAL - DO NOT HANDLE - NOTIFY CIVIL AUTHORITIES IF FOUND.

B. Replacement of tags and rings shall be carried out by the licensee in accordance with instructions contained in procedures provided by the Federal Emergency Management Agency.

21. Each portable nuclear gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The gauge or its container must be locked when in transport, storage, or when not under the direct surveillance of an authorized user.

22. Any cleaning, maintenance, or repair of the gauge(s) that requires removal of the source rod shall be performed only by the manufacturer or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

MATERIALS LICENSE
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License number 35-11581-02

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23. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days for decay-in-storage before disposal in ordinary trash provided:

    A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

    B. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate meter set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

    C. A record of each disposal permitted under this License Condition shall be retained for 3 years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

4. The licensee shall not store licensed material contained in waste for more than 2 years from the date the waste is put into storage. The licensee shall maintain records which indicate the date that licensed material contained in waste is put into storage.

25. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

26. Licensed material shall not be used in or on human beings.

27. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

28. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 5 years from the date of each inventory, and shall include the quantities and kinds of byproduct material, manufacturer's name and model numbers, location of the sources and/or devices, and the date of the inventory.

29. The licensee shall not acquire licensed material in a sealed source or device that contains a sealed source unless the source or device has been registered with the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State.

MATERIALS LICENSE
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License number 35-11581-02

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30. The licensee shall maintain records of information related to decommissioning at 919 Kerr Research Drive, Ada, Oklahoma, as specified in 10 CFR 30.35(g) until this license is terminated by the Commission.

31. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated November 13, 1991
B. Application dated December 9, 1992
C. Letter dated February 11, 1993
D. Letter dated February 23, 1993
E. Letter dated July 13, 1992
F. Letter dated July 8, 1993

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date JUL 29 1993

By _____
Nuclear Materials Licensing Section
Region IV
Arlington, Texas 76011

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-162-D-101-S DATE: June 30, 1993

DEVICE TYPE: FIXED MOISTURE DENSITY GAUGE

MODEL: EPA91197

MANUFACTURER/DISTRIBUTOR: Centergy Technologies, Inc.
4180 Gleanor Hill Road
Ann Arbor, MI 48105

SEALED SOURCE MODEL DESIGNATION: Amersham: CDC.709 (CS-137), AMC.26 (AM-241)

ISOTOPE:	MAXIMUM ACTIVITY:
Cesium-137	110 mCi (4070 MBq)
Americium-241	220 mCi (8140 MBq)

LEAK TEST FREQUENCY: 6 months

PRINCIPAL USE: (D) - Gamma Gauges

CUSTOM DEVICE: ___X___ YES _____ NO

CUSTOM USER: U. S. Environmental Protection Agency
Robert S. Kerr Environmental Research Laboratory
P.O. Box 1198
Ada, OK 74820

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

DEVICE TYPE: FIXED MOISTURE DENSITY GAUGE

DESCRIPTION:

The purpose of this device is to house and shield two radioactive sources, cesium-137 and americium-241, while they are not in use, and to collimate the radioactive beam to the desired diameter or size during use of the sources. The shielding is designed to allow the exposure of either of the sources individually or both simultaneously, or to shield both of the sources.

The radioactive beam from the sources is used in research studies on the flow of water, oil, air, and/or chemicals through soils to determine quantities such as soil density and water, oil, or chemical content. The radiation beam is collimated during use to a beam of not more than 0.787" (2 cm) horizontally and 0.197" (0.5 cm) vertically. The beam is aimed through a physical model on which measurements are to be made, and into a 2" x 2" (5.08 cm x 5.08 cm) Nal detector. The detector is 6" to 18" (15.24 cm - 45.72 cm) from the collimator of the device.

The device is securely fastened to the gamma positioner, which is used to position the gamma sources, along with the detector, at the locations where measurements are desired. The device and the detector are mounted on dovetail slides, which are equipped with stops at the ends to prevent the device from becoming detached. The gamma positioner has dimensions of approximately 6′ (1.829 m) in width, 12′ (3.658 m) in length, and 6′ (1.829 m) in height. The device containing the sources will therefore move no more than 6′ (1.829 m) vertically and 12′ (3.658 m) horizontally. It is permanently located in a laboratory room used only for research which involves gamma sources (see Attachment 1).

The device is a rectangular box, with overall dimensions of 8.5" (21.59 cm) in length and width, and 7.5" (19.05 cm) in height. The outer shell of the container is fabricated from 0.5" (1.27 cm) mild steel. Inside the shell is a filler block which is machined from lead and has an outside dimension 7.5" (19.05 cm) in length width and 6.75" (17.145 cm) in height. This filler block has a 7.0" (17.78 cm) central bore to accept the rotatable cylinders, and a 1.03" (2.616 cm) diameter cross bore which will be a radiation pathway. Three rotatable cylinders, each machined from lead, are nested within the filler block. The outer of these rings (6.98" (17.729 cm) diameter and

DEVICE TYPE: FIXED MOISTURE DENSITY GAUGE

DESCRIPTION (cont'd):

6.75" (17.145 cm) height) will contain the americium source, while the innermost ring (2.48" (6.299 cm) diameter and 6.75" (17.145 cm) height) will contain the cesium source. The outer ring and the middle ring (4.48" (11.379 cm) diameter and 6.75" (17.145 cm) height) will contain 1.03" (2.616 cm) diameter cross bores to allow exposure of the cesium source while the americium source remains in its unexposed position.

This system of rings and steel provides at least one-half inch (1.77 cm) of lead and one-half inch of steel to shield the americium source while it is in the shielded position, and 5.5" (13.97 cm) of lead and 0.5" (1.27 cm) of steel to shield the cesium source in the shielded position. This provides essentially full shielding of the sources, so that the radiation levels on the outside of the box are not above 2 mrem/hr (20 μSv/hr) at 12" (30.48 cm) from the edge of the device. The projected radiation doses are, in fact, much lower than this value. While the sources are in the exposed or open position, the collimator shields all except a beam of diameter no larger than 0.315" (0.8 cm) or a slot with the dimensions 0.787" (2 cm) by 0.197" (0.5 cm).

The 200 mCi (7.4 GBq) americium source, Amersham's AMC.26, and the 100 mCi (3.7 GBq) cesium source, Amersham's CDC.709, are both contained in aluminum holder bodies (0.88" (2.235 cm) in diameter and 1" (2.54 cm) in length). After the source is placed within the holder, a retaining disk of 0.02" (0.051 cm) thick aluminum is placed over the open end of the holder, and this is held in place by a snap ring. The source holders are secured in place within their bores in the lead cylinders by snap rings, one at each end of the bore. The source holders are labeled (stamped) with either an A (americium) or a C (cesium) to indicate which source it should hold.

DEVICE TYPE: FIXED MOISTURE DENSITY GAUGE

DESCRIPTION (cont'd):

Each of the three lead rotating cylinders has two knurled control pins at the top. These pins protrude through the top plate of the shielding box, and control the exposure and shielding of the sources by rotating the source into alignment with the radiation pathway or out of its alignment. The top plate contains slots which limit the rotation of the cylinders. The slots are stamped with the name of the radiation source whose movement they limit, and with red and green indicators to show whether the source is in the shielded or unshielded position. When the pins are in the position of the red indicator, the source is exposed. The shielding also contains a lockout plate constructed of 0.5" (1.27 cm) mild steel and a lock that will be used to lock the shielding with both sources unexposed to prevent tampering (drawing EPA92002). The lockout plate will only fit over the top of the device when the sources are shielded, or unexposed.

LABELING:

The device is labeled in accordance with Section 20.203, 10 CFR Part 20. The labels contain the radiation symbol, isotope, activity, date of measurement, model number, serial number, name and address of manufacturer, and the words, "CAUTION - RADIOACTIVE MATERIAL".

Two labels are used for this purpose. The first is located on the back of the device (the side opposite the collimator), which is the side of the device seen most easily from the room. That label contains the standard radiation trefoil and the warning "CAUTION - RADIOACTIVE MATERIALS". The device label also lists isotopes in the device and their activities, as well as the date those activities were measured.

The other label is posted on the door outside the room where the device resides. It has the radiation trefoil, the warning "CAUTION - RADIOACTIVE MATERIALS" and contains emergency phone numbers.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-162-D-101-S DATE: June 30, 1993

DEVICE TYPE: FIXED MOISTURE DENSITY GAUGE

DIAGRAM:

See attachments 1-4.

CONDITIONS OF NORMAL USE:

This device is intended for use in research studies on the flow of water, oil, air, and/or chemicals through soils to determine quantities such as soil density and water, oil, or chemical content. The device is designed to withstand the laboratory conditions where it is will be permanently used under.

Access to the radiation beam is restricted due to the measuring gap between the source and detector. The gap between the two varies from 6 to 18 inches (15.24 to 45.72 cm), with most of that space taken up by the sample. At most, two to three inches (5.08 to 7.62 cm) exist between the collimator and sample, and between the sample and detector. This does not leave room for anything more than a hand to get into the beam.

The device will only be used by the U. S. Environmental Protection Agency at the Robert S. Kerr Environmental Research Laboratory in Ada, Oklahoma.

PROTOTYPE TESTING:

Since this is a custom device, no prototype was subjected to physical tests. However, the shielding efficiency was studied using computer models.

The sealed sources used in the device have been tested and achieved the following ANSI classifications:

Manufacturer	Model	ANSI Classification
Amersham	CDC.709	77C66544
Amersham	AMC.26	77C64444

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

DEVICE TYPE: FIXED MOISTURE DENSITY GAUGE

EXTERNAL RADIATION LEVELS:

Computer analysis of the shielding design predicts that all radiation levels at the surface of the device will be less than 1 mr/hr (10 μSv/hr), except at the beam port, where the dose can get as high as 25 mr/hr (250 μSv/hr)

QUALITY ASSURANCE AND CONTROL:

The finished device will be tested to be certain it meets the device criteria for radiation protection. External radiation levels will be tested after the initial installation of the sources to confirm that the computer predictions were accurate. If the radiation levels exceed acceptable doses, the two sources will be returned to their shipping containers.

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

- The device shall only be distributed to the custom user, U. S. Environmental Protection Agency, Robert S. Kerr Environmental Research Laboratory, P.O. Box 1198, Ada, Oklahoma 74820.
- Handling, storage, use, transfer, and disposal: To be determined by the licensing authority.
- This device will be installed and initially tested for external radiation levels (source exposed, source shielded) by the U.S. Environmental Protection Agency or other persons authorized by a specific license.
- The sources shall not be subjected to environmental conditions which exceed their ANSI classifications.
- The device shall be leak tested at intervals not to exceed six months using techniques capable of detecting 0.005 microcurie (185 Bq) of removable contamination.
- This registration sheet and the information contained within the references shall not be changed without the written consent of the NRC.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-162-D-101-S DATE: June 30, 1993 PAGE 7 OF 7

DEVICE TYPE: FIXED MOISTURE DENSITY GAUGE

SAFETY ANALYSIS SUMMARY:

This device is designed to shield the gamma sources when the sources are in the shielded position. It is also designed to greatly limit the size of the radiation beam emitted when the source(s) are exposed.

The type of on-off indicator used on this device (labels stamped into the top of the device) have no moving parts and are not powered, so they cannot malfunction.

Based on review of the EPA91197 and the information and computer simulation data cited below, we conclude that this device is acceptable for custom licensing purposes.

Furthermore, we conclude that the device would be expected to maintain its containment integrity for normal conditions of use and likely accidental conditions which might occur during uses specified in this certificate.

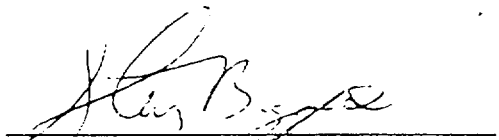
REFERENCES:

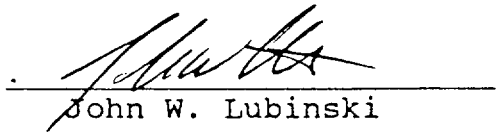
The following supporting documents for the EPA91197 are hereby incorporated by reference and are made a part of this registry document.

- The U.S. Environmental Protection Agency's application dated July 13, 1992, and letters dated June 22, 1993, and June 2, 1993, with enclosures thereto.

ISSUING AGENCY:

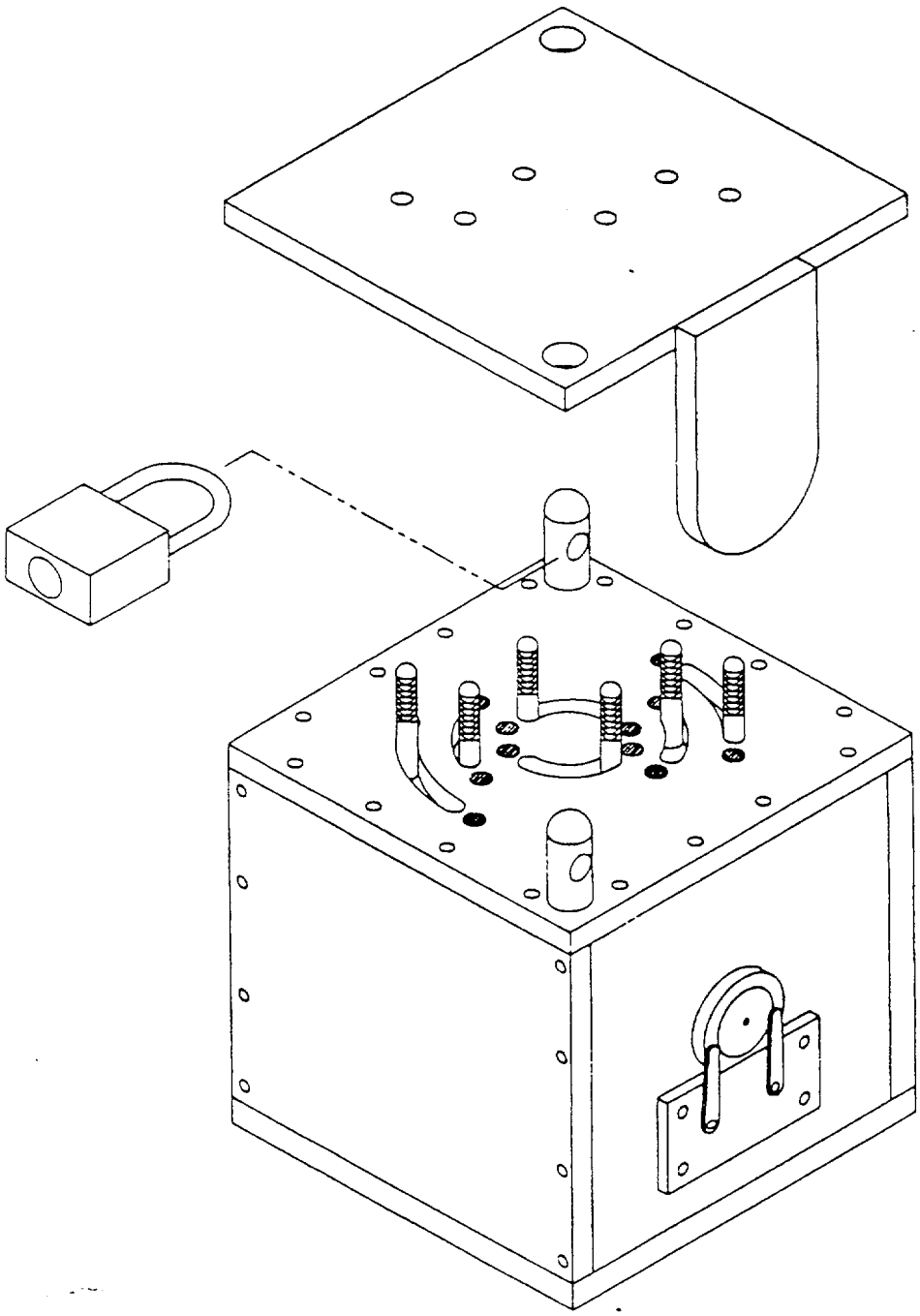
U. S. Nuclear Regulatory Commission

Date: June 30, 1993 Reviewer: 
Steven L. Baggett

Date: June 30, 1993 Concurrence: 
John W. Lubinski

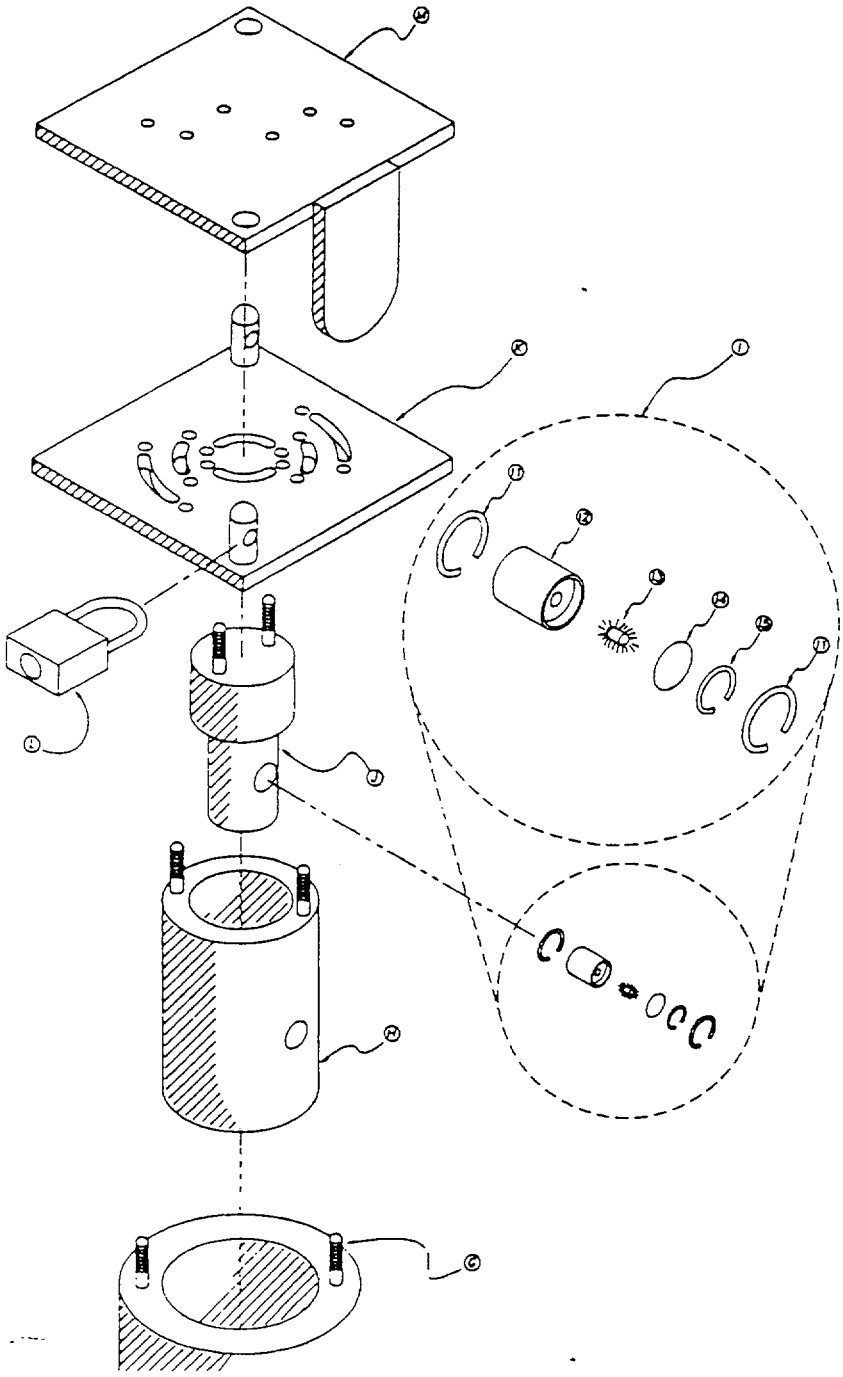
REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-162-D-101-S DATE: JUN 3 0 1993 ATTACHMENT 1



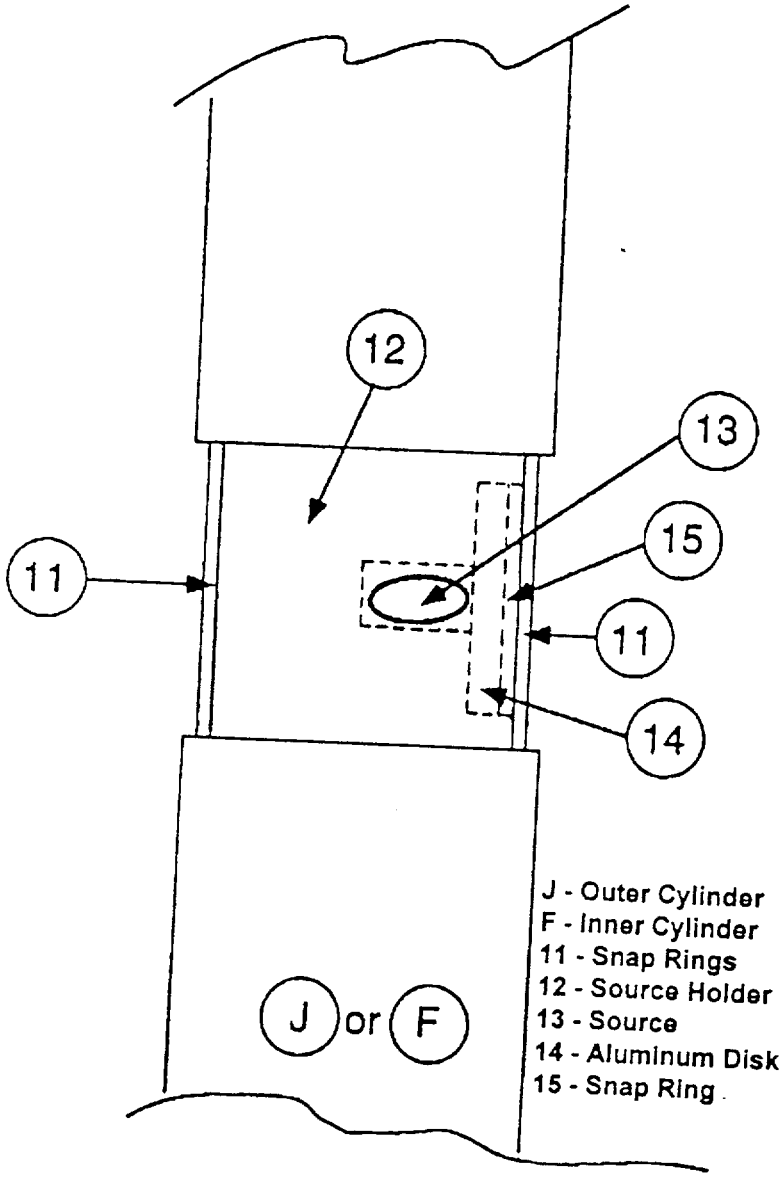
REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-162-D-101-S DATE: JUN 30 1993 ATTACHMENT 2



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

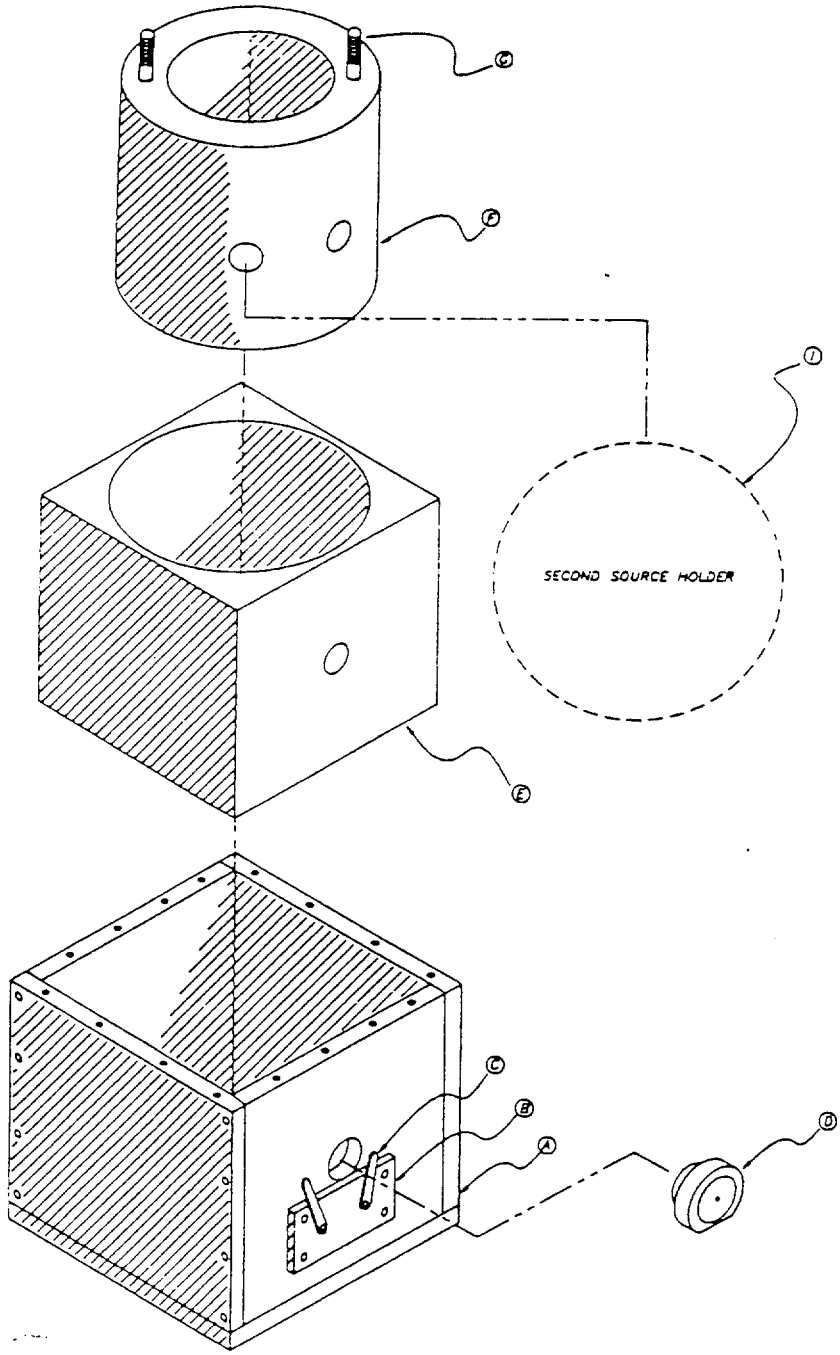
NO.: NR-162-D-101-S DATE: JUN 30 1993 ATTACHMENT 4



Schematic View of Source Holder
(No Scale)

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: NR-162-D-101-S DATE: JUN 30 1993 ATTACHMENT 3



• FAX COVER SHEET •

Attachment #2

COLORADO SCHOOL OF MINES
ENVIRONMENTAL HEALTH AND SAFETY
1500 ILLINOIS STREET
GOLDEN, COLORADO 80401 U.S.A.

TELEPHONE:
303-273-3316
FAX:
303-384-2081

DATE: December 3, 1999

ATTENTION: EPA — Garmon Smith

LOCATION: Ada, OK

FAX#: 580-436-8528

TOTAL NUMBER OF PAGES INCLUDING COVER SHEET: 12

FROM: Bob MacPherson

MESSAGE:

Garmon —

Refer to License Items LLLL. and MMMM.

Bob

Please notify EHS as soon as possible if all pages are not received.

STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

Pursuant to the Radiation Control Act Title 25, Article 11, CRS 1989, Replacement Volume, as amended, and the State of Colorado *Rules and Regulations Pertaining to Radiation Control*, Part 3, and in reliance on statements and representations heretofore made by the licensee designated below; a license is hereby issued authorizing such licensee to transfer, receive, possess and use the radioactive material(s) designated below; and to use such radioactive material(s) for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations, and orders now or hereafter in effect of the Colorado Department of Public Health and Environment and to any conditions specified below.

Licensee

1. Name: Colorado School of Mines

2. Address: 1500 Illinois Street
Golden, CO 80401

3. In accordance with the letter dated September 20, 1999, License No. Colo. 627-01 is amended in its entirety.

4. Expiration date: September 30, 2002

5. Reference number:

6. Radioactive materials (element and mass no.)	7. Chemical and/or physical form	8. Maximum quantity licensee may possess at any one time
A. Cobalt 60	A. Sealed source (Tracer Lab model R-30)	A. 1 source not to exceed 370 MBq (10 mCi)
B. Cesium 137	B. Sealed source	B. 1 source not to exceed 185 MBq (5 mCi)
C. Americium 241	C. Plated source	C. 1 source not to exceed 4.44 kBq (0.12 µCi)
D. Plutonium 239:Be and Plutonium 241:Be	D. Sealed source (NUMEC model B [Pu-Be])	D. 1 source not to exceed 74 GBq (2 Ci)
E. Cobalt 56	E. Sealed source (Isotope Products model GF-056D)	E. 37 kBq (1 µCi)
F. Curium 244	F. Sealed source (Isotope Products model AFR-244-3M)	F. 2 sources, not to exceed 148 MBq (4 mCi) total
G. Curium 244	G. Sealed source (Amersham CLN.PG.1)	G. 5.92 GBq (160 mCi)
H. Tin 119m	H. Any	H. 74 MBq (2 mCi)

Continued from Page 1

STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
Expiration Date: September 30, 2002
Amendment No. 29

6. Radioactive materials (element and mass no.)	7. Chemical and/or physical form	8. Maximum quantity licensee may possess at any one time
I. Tin 119m	I. Sealed source (Amersham model TXDK)	I. 4 sources, no single source to exceed 370 MBq (10 mCi)
J. Samarium 151	J. Sealed source (New England Nuclear)	J. 1 source not to exceed 925 MBq (25 mCi)
K. Tin 121m	K. Sealed source (NEN model NER-093)	K. 1 source not to exceed 7.4 MBq (0.2 mCi)
L. Antimony 125	L. Sealed source (NEN model NER-098)	L. 1 source not to exceed 259 MBq (7 mCi)
M. Cobalt 57	M. Sealed source (NEN model NER-072A or Amersham model CTD.D2)	M. 8 sources, no single source to exceed 925 MBq (25 mCi). Total possession not to exceed 3.70 GBq (100 mCi).
N. Hydrogen 3	N. Any	N. 185 MBq (5 mCi)
O. Carbon 14	O. Any	O. 185 MBq (5 mCi)
P. Uranium 232	P. Any	P. 37 MBq (1 mCi)
Q. Uranium 233	Q. Any	Q. 185 MBq (5 mCi)
R. Uranium 234	R. Any	R. 370 MBq (10 mCi)
S. Uranium 235	S. Any	S. 370 kBq (10 µCi)
T. Americium 241	T. Any	T. 370 kBq (10 µCi)
U. Americium 241	U. Soil and sediment	U. 55.5 kBq (1.5 µCi)
V. Antimony 125	V. Any	V. 370 kBq (10 µCi)
W. Cadmium 109	W. Any	W. 370 kBq (10 µCi)
X. Cerium 139	X. Any	X. 370 kBq (10 µCi)

Continued from Page 2

STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
Expiration Date: September 30, 2002
Amendment No. 29

6. Radioactive materials (element and mass no.)	7. Chemical and/or physical form	8. Maximum quantity licensee may possess at any one time
Y. Cesium 134	Y. Any	Y. 370 kBq (10 µCi)
Z. Cesium 137	Z. Any	Z. 370 kBq (10 µCi)
AA. Cobalt 57	AA. Any	AA. 370 kBq (10 µCi)
BB. Cobalt 60	BB. Any	BB. 370 kBq (10 µCi)
CC. Curium 244	CC. Any	CC. 370 kBq (10 µCi)
DD. Europium 152	DD. Any	DD. 370 kBq (10 µCi)
EE. Europium 154	EE. Any	EE. 370 kBq (10 µCi)
FF. Europium 155	FF. Any	FF. 370 kBq (10 µCi)
GG. Mercury 203	GG. Any	GG. 370 kBq (10 µCi)
HH. Radium 226	HH. Any	HH. 370 kBq (10 µCi)
II. Radium 228	II. Any	II. 370 kBq (10 µCi)
JJ. Sodium 22	JJ. Any	JJ. 185 MBq (5 mCi)
KK. Strontium 85	KK. Any	KK. 370 kBq (10 µCi)
LL. Sulfur 35	LL. Any	LL. 18.5 MBq (500 µCi)
MM. Tin 113	MM. Any	MM. 370 MBq (10 mCi)
NN. Yttrium 88	NN. Any	NN. 370 MBq (10 mCi)
OO. Plutonium 239, 240 and 241	OO. Soil and sediment	OO. 555 MBq (15 mCi)
PP. Plutonium 242	PP. Solution	PP. 74 Bq (2 nCi)
QQ. Thorium 234	QQ. Thorium nitrate	QQ. 37 MBq (1 mCi)
RR. Radium 226	RR. Sealed source	RR. 1 source, not to exceed 40.7 MBq (1.1 mCi)
SS. Radium 226	SS. Dry stearate salt	SS. 6 sources, not to exceed 77.7 MBq (2.1 mCi) total

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STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
Expiration Date: September 30, 2002
Amendment No. 29

6. Radioactive materials (element and mass no.)	7. Chemical and/or physical form	8. Maximum quantity licensee may possess at any one time
TT. Thorium 230	TT. Sealed source (Eberline)	TT. 26 sources, not to exceed 37 kBq (1 µCi) total
UU. Krypton 85	UU. Gas in sealed tube	UU. 5 sources, not to exceed 463 MBq (12.5 mCi) total
VV. Plutonium 238	VV. Sealed source	VV. 1 source, not to exceed 370 Bq (10 nCi)
WW. Americium 241	WW. Foil Source (Amersham AMM1001H)	WW. 1 source, not to exceed 3.70 MBq (100 µCi)
XX. Americium 241	XX. Sealed source (Gammatron)	XX. 2 sources, no single source to exceed 9.25 GBq (250 mCi)
YY. Thorium oxide	YY. Crucibles	YY. 10 crucibles, not to exceed 650 grams total weight
ZZ. Cesium 137	ZZ. Sealed source (Troxler Dwg. A-102112)	ZZ. 1 source, not to exceed 333 MBq (9 mCi)
AAA. Americium 241:Be	AAA. Sealed source (Troxler Dwg. A-102451)	AAA. 1 source, not to exceed 1.63 GBq (44 mCi)
BBB. Cesium 137 and Americium 241:Be	BBB. Sealed source (CPN-131)	BBB. 1 source, not to exceed 370 MBq (10 mCi) of Cs 137 and 1.85 GBq (50 mCi) of Am 241
CCC. Hydrogen 3	CCC. Foil (U.S. Radium Corp.)	CCC. 1 source, not to exceed 6.37 GBq (0.172 Ci).
DDD. Hydrogen 3	DDD. Foil (U.S. Radium Corp.)	DDD. 1 source, not to exceed 191 GBq (5.16 Ci)
EEE. Radium 226	EEE. Any form	EEE. As necessary for use authorized in Condition 9.M
FFF. Hydrogen 3	FFF. Tritiated water	FFF. 3.70 MBq (100 µCi)

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STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
Expiration Date: September 30, 2002
Amendment No. 29

6. Radioactive materials (element and mass no.)	7. Chemical and/or physical form	8. Maximum quantity licensee may possess at any one time
GGG. Mixed Gamma Standard: Cadmium 109, Cobalt 57, Cobalt 60, Cerium 139, Mercury 203, Tin 113, Cerium 137, Strontium 89, Yttrium 88	GGG. Acid solution	GGG. 370 kBq (10 µCi)
HHH. Thorium 230	HHH. Acid solution	HHH. 370 kBq (10 µCi)
III. Americium 241	III. Acid solution	III. 370 kBq (10 µCi)
JJJ. Cobalt 60	JJJ. Acid solution	JJJ. 370 kBq (10 µCi)
KKK. Strontium 89	KKK. Acid solution	KKK. 370 kBq (10 µCi)
LLL. Strontium 90	LLL. Acid solution	LLL. 370 kBq (10 µCi)
MMM. Cesium 137	MMM. Acid solution	MMM. 370 kBq (10 µCi)
NNN. Cesium 134	NNN. Acid solution	NNN. 370 kBq (10 µCi)
OOO. Uranium natural	OOO. Acid solution	OOO. 370 kBq (10 µCi)
PPP. Radium 226	PPP. Acid solution	PPP. 370 kBq (10 µCi)
QQQ. Radium 228	QQQ. Acid solution	QQQ. 370 kBq (10 µCi)
RRR. Americium 243	RRR. Acid solution	RRR. 370 kBq (10 µCi)
SSS. Plutonium 242	SSS. Acid solution	SSS. 370 kBq (10 µCi)
TTT. Carbon 14	TTT. Liquid	TTT. 37 MBq (1 mCi)
UUU. Hydrogen 3	UUU. Liquid	UUU. 3.7 GBq (100 mCi)
VVV. Plutonium 239	VVV. Acid solution	VVV. 37 kBq (1 µCi)
WWW. Uranium (Depleted)	WWW. Metal	WWW. 1.885 kilograms
XXX. Americium 241	XXX. Sealed source (Amersham model AMC.P5)	XXX. 1 source not to exceed 7.4 GBq (200 mCi)

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STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
Expiration Date: September 30, 2002
Amendment No. 29

6. Radioactive materials (element and mass no.)	7. Chemical and/or physical form	8. Maximum quantity licensee may possess at any one time
YYY. Cesium 137	YYY. Sealed source (Amersham model CDC.808)	YYY. 1 source not to exceed 1.85 GBq (50 mCi)
ZZZ. Chromium 51	ZZZ. Acid solution	ZZZ. 37 MBq (1 mCi)
AAAA. Nickel 63	AAAA. Acid solution	AAAA. 37 MBq (1 mCi)
BBBB. Zinc 65	BBBB. Acid solution	BBBB. 37 MBq (1 mCi)
CCCC. Cadmium 109	CCCC. Acid solution	CCCC. 37 MBq (1 mCi)
DDDD. Mercury 203	DDDD. Acid solution	DDDD. 37 MBq (1 mCi)
EEEE. Zinc 65	EEEE. Acid solution	EEEE. 370 kBq (10 µCi)
FFFF. Barium 133	FFFF. Acid solution	FFFF. 370 kBq (10 µCi)
GGGG. Iodine 131	GGGG. Aqueous solution	GGGG. 370 kBq (10 µCi)
HHHH. Plutonium 239	HHHH. Acid solution	HHHH. 370 kBq (10 µCi)
IIII. Uranium (Depleted)	IIII. Metal	IIII. 5 kilograms
JJJJ. Uranium and/or Thorium	JJJJ. Chemical Reagents	JJJJ. 12.4 kilograms
KKKK. Nickel 63	KKKK. Foil source	KKKK. 1 source, not to exceed 555 MBq (15 mCi)
LLLL. Cesium 137	LLLL. Sealed source (CDC 709)	LLLL. 1 source, not to exceed 4.07 GBq (110 mCi)
MMMM. Americium 241	MMMM. Sealed source (AMC.26)	MMMM. 1 source, not to exceed 8.14 GBq (220 mCi)

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STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
Expiration Date: September 30, 2002
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CONDITIONS

9.A. Radioactive material authorized in Items 6.A. through 6.G. to be used for calibration and student experiments.

B. Radioactive materials authorized in Items 6.H. through 6.M. to be used for Mossbauer Spectroscopy.

C. Radioactive materials authorized in Items 6.N. through 6.T., 6.V. through 6.NN., 6.PP, 6.QQ. and 6.HHHH. to be used as laboratory tracers in physical and chemical processes.

D. Radioactive materials authorized in Items 6.U. and 6.OO. to be used for quantitative and qualitative analysis of environmental samples.

E. Radioactive materials authorized in Items 6.RR. and 6.SS. are to be used in calibration of radiation measuring devices and generation of radon.

F. Radioactive materials authorized in Items 6.TT. and 6.VV. are to be used in calibration of measuring devices.

G. Radioactive material authorized in Item 6.UU. to be used to remove ions from gas streams in analytical devices.

H. Radioactive material authorized in Item 6.WW. to be used to produce alpha particles in research and development.

I. Radioactive material authorized in Item 6.XX. shall remain in storage until lawful disposal can be completed.

J. Radioactive material authorized in Items 6.YY., 6.CCC., and 6.DDD. shall remain in storage until lawful disposal can be completed.

K. Radioactive materials authorized in Items 6.ZZ. and 6.AAA. shall remain in storage in a Troxler 3411B model moisture/density gauge until lawful disposal can be completed.

L. Radioactive materials authorized in Item 6.BBB. shall remain in storage in a CPN B(R) surface moisture/density gauge until lawful disposal can be completed.

M. Radioactive materials authorized in Items 6.EEE. shall remain in storage as contaminated building materials in the Engineering Hall and appurtenances, and in soils in contiguous areas, except those which meet the current guidelines for decontamination of equipment and facilities for unrestricted use.

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STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
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9.N. Radioactive materials authorized in Items 6.FFF. through 6.SSS. and 6.EEEE. through 6.GGGG. to be used for radiochemical reference standards.

O. Radioactive materials authorized in Items 6.TTT. and 6.UUU. to be used as tracers to measure membrane diffusion rates.

P. Radioactive material authorized in Item 6.VVV. to be used in experiments to determine the sorption rates of Pu on colloidal particles in aqueous solutions of varying pH.

Q. Radioactive material authorized in Item 6.WWW. shall remain in storage until lawful disposal can be completed.

R. Radioactive materials authorized in Items 6.XXX., 6.YYY., 6.LLLL, and 6.MMMM. to be used for research and development.

S. Radioactive materials authorized in Items 6.ZZZ. through 6.DDDD. to be used for research in diffusion rates of metals from sediments.

T. Radioactive materials authorized in Item 6.IIII. to be used for research in electro refining of uranium.

U. Radioactive materials authorized in Item 6.JJJJ. to be used as reagents in chemical experiments.

V. Radioactive materials authorized in Item 6.KKKK. to be used in a Hewlett-Packard model 5880A gas chromatograph.

10. Radioactive materials authorized in Item 6 shall be used and stored only at the Colorado School of Mines, Golden, Colorado, in the following locations:
    A. Suite 147, and Laboratories 149 and 257 in Meyer Hall
    B. Chemical Storage Facility and Labs 132, 235, 236, 242 in Coolbaugh Hall
    C. Laboratory 486 in Alderson Hall
    D. High Bay area in Hill Hall
    E. the Materials Science Building
    F. the Hazardous Materials Management Facility
    G. the Engineering Hall and appurtenances, and soil in contiguous areas (only Items 6.EEE. material)
    H. Radioactive materials authorized in Item 6.JJJJ. may also be used at the locations specified in the Source Material Inventory Report dated November 3, 1999.

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STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
Expiration Date: September 30, 2002
Amendment No. 29

11. The licensee shall comply with the provisions of the State of Colorado *Rules and Regulations Pertaining to Radiation Control*, Part 4, "Standards for Protection Against Radiation" and Part 10, "Notices, Instructions and Reports to Workers: Inspections".

12.A. Radioactive materials authorized in Items 6.A. through 6.G. shall be used by, or under the supervision of F. E. Cecil.

B. Radioactive materials authorized in Items 6.H. through 6.M. shall be used by, or under the supervision of D. L. Williamson.

C. Radioactive materials authorized in Items 6.N. through 6.QQ.; 6.FFF. through 6.SSS.; 6.VVV.; and 6.ZZZ. through 6.HHHH. shall be used by, or under the supervision of B.D. Honeyman.

D. Radioactive materials authorized in Items 6.RR. through 6.VV. shall be used by, or under the supervision of Robert Holub.

E. Radioactive material authorized in Item 6.WW. shall be used by, or under the supervision of James McNeil.

F. Radioactive materials authorized in Items 6.XX. through 6.EEE., and 6.WWW. shall be STORED ONLY under the supervision of R. A. MacPherson.

G. Radioactive materials authorized in Items 6.TTT. and 6.UUU. shall be used by, or under the supervision of Annette Bunge.

H. Radioactive materials authorized in Items 6.XXX., 6.YYY., 6.LLLL, and 6.MMMM. shall be used by, or under the supervision of Tissa Illangasekare.

I. Radioactive material authorized in Item 6.IIII. shall be used by, or under the supervision of Brajendra Mishra.

J. Radioactive material authorized in Item 6.JJJJ. shall be used by, or under the supervision of Robert MacPherson.

K. Radioactive material authorized in Item 6.KKKK. shall be used by, or under the supervision of Don Macalady.

13. The designated Radiation Safety Officer is Robert A. MacPherson.

14. Radioactive material authorized by Item 6 of this license shall be stored and used in a manner which will preclude use by unauthorized personnel.

15. Each sealed source authorized in Item 6 of this license shall be tested for leakage in accordance with the requirements of RH 4.16 of the State of Colorado *Rules and Regulations Pertaining to Radiation Control*, at intervals not to exceed six months.

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STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
Expiration Date: September 30, 2002
Amendment No. 29

16. Sealed sources containing radioactive material shall not be opened or removed from their respective source holders by the licensee.

17. Radiation detection and counting equipment shall be calibrated annually by persons approved by the U.S. Nuclear Regulatory Commission or an Agreement State.

18. Each source holder and logging tool containing radioactive material shall bear a legible and visible marking. The marking shall bear the conventional radiation symbol and the following wording: DANGER - RADIOACTIVE - DO NOT HANDLE - NOTIFY CIVIL AUTHORITIES.

19. The licensee shall not transfer possession and/or control of materials or products containing radioactive material as a contaminant except:

A. by transfer of waste to an authorized recipient;

B. by transfer to a specifically licensed recipient; or,

C. as provided otherwise by specific condition of this license pursuant to the requirements of RH 3.22 of the State of Colorado *Rules and Regulations Pertaining to Radiation Control*.

20.A. The licensee may transport radioactive material or deliver radioactive material to a carrier for transport, in accordance with the provisions of RH 17.5 of the State of Colorado Rules and Regulations Pertaining to Radiation Control, "Transportation of Licensed Material".

B. The transportation of radioactive materials within the State of Colorado shall be subject to all applicable regulations of the Colorado Public Utilities Commission, Colorado Department of Transportation, Colorado Department of Public Safety, Colorado Department of Revenue (Port of Entry), U.S. Department of Transportation, and other agencies of the United States having jurisdiction. When the U.S. Department of Transportation Regulations (Title 49, Chapter I, Code of Federal Regulations) are not applicable to shipments by land of Colorado radioactive material by reason of the fact that the transportation does not occur in interstate or foreign commerce, the licensee must be in compliance with the requirements relating to packaging of the radioactive material, marking and labeling of the package, placarding of the transport vehicle, and accident reporting set forth in the regulations of the U.S. Department of Transportation.

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STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 627-01
Expiration Date: September 30, 2002
Amendment No. 29

21. Prior to any work, such as repairs, remodeling, or removal of building materials, which impacts the controlled areas of the Engineering Hall or surrounding grounds, an evaluation must be completed to include the following:

A. impact on the controlled area;
B. procedures for protection of the workers;
C. control of spread of contamination;
D. disposal of removed contaminated materials; and
E. monitoring during and after work to demonstrate no spread of contamination.

Written records of the evaluation, verification of actions taken, and results of monitoring must be maintained by the licensee.

22. The State of Colorado *Rules and Regulations Pertaining to Radiation Control* shall govern the licensee's statements in applications or letters, unless the licensee's statements are more restrictive than the regulations. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Items 6, 7 and 8 of this license in accordance with statements, representations, and procedures contained in:

A. the application and attachments dated August 29, 1997; and

B. the license correspondence and attachments dated September 2, 1997; September 3, 1997; December 9, 1997; December 17, 1997; June 24, 1998; September 1, 1998; and October 6, 1998; December 22, 1998; March 26, 1999; July 2, 1999; September 20, 1999; October 20, 1999; and November 3, 1999.

C. the Colorado School of Mines Radiation Protection Program, Revised December, 1997.

FOR THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Date November 17, 1999 By W. Jamison

OR-RH-18

Attachment #3

AEA TECHNOLOGY
QSA

FACSIMILIE

PHONE# (800) 225-1383 INTERNATIONAL (781) 272-2000
FAX # (781)273-2216

FAX TO: GARMON SMITH

FAX FROM: KEVIN O'DWYER.

FAX #: 580-436-8506

Page 1 of 5

DATE: 12/29/99

SUBJECT: CERT.

Reference GB/23/S-85

Certificate Issue 6

Certificate of Approval of Design for Special Form Radioactive Material

Title
X.7 Capsule
Drawing Nos and Specification References
Assembly: 3A 62010 Issue C Details: 3A 62009 Issue D Also Special Form Drawing List SFDL/23 Issue 3 QARS/DD/023/0997 Issue 1 dated 17 September 1997
Q.A. Programme Ref: Nycomed Amersham 's "Transport Safety Arrangements"

Radioactive Material	Maximum Activity
Caesium 137	37 GBq
Americium 241	11.1 GBq
Radium 226	740 MBq
Barium 133	740 MBq

THIS IS TO CERTIFY that the Secretary of State for the Environment Transport and the Regions being, for the purposes of the Regulations of the International Atomic Energy Agency, the Competent Authority of Great Britain in respect of inland surface transport and of the United Kingdom of Great Britain and Northern Ireland in respect of sea and air transport and the Department of the Environment for Northern Ireland being the Competent Authority of Northern Ireland in respect of inland surface transport, have approved the above mentioned Special Form Design. Radioactive material manufactured to the above-mentioned design qualifies as special form radioactive material and as such will meet the requirements of the regulations overleaf.

This Certificate of Approval applies only to the design as set out in the above named drawings and specifications submitted by Nycomed Amersham plc

In the event of any alteration in the composition of the package, the package design or in any of the facts stated in the application for approval, this certificate will cease to have effect unless the Competent Authority is notified of the alteration and the Competent Authority confirms the certificate notwithstanding the alteration.

This Certificate Cancels all Previous Issues and is valid until 31 July 2002
COMPETENT AUTHORITY IDENTIFICATION MARK: GB/23/S-85

UNITED KINGDOM COMPETENT AUTHORITY FOR THE TRANSPORT
27 JUL 1999
OF RADIOACTIVE MATERIALS

Transport Radiological Adviser
Department of the Environment
Transport and the Regions
Great Minster House
76 Marsham Street
London SW1P 4DR

On behalf of the Secretary of State for the Environment Transport and the Regions and the Department of the Environment for Northern Ireland

Cesium-137

Gamma sources

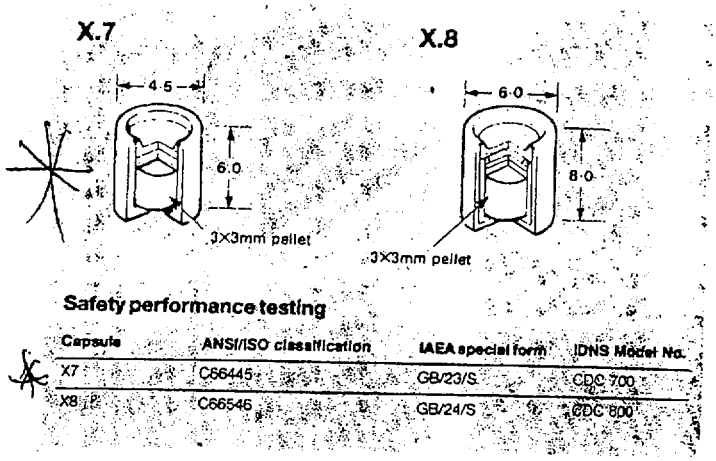
Sources contain the radionuclide as a pellet of cesium ceramic.

Encapsulation is in welded stainless steel. Sources up to 300mCi, 11·1GBq are supplied with single X.7 or double encapsulation X.8. Higher activity sources are double encapsulated X.9.

Nominal air kerma rate at 1 metre μGy/hr	Nominal equivalent activity* mCi	Single encapsulation Code (X.7)	Double encapsulation Code (X.8)
2·88	1	CDC.701	CDC.801
5·76	2	CDC.702	CDC.802
8·64	3	CDC.703	CDC.803
14·4	5	CDC.704	CDC.804
28·8	10	CDC.705	CDC.805
43·2	15	CDC.70550	CDC.80550
57·6	20	CDC.706	CDC.806
72·0	25	CDC.70650	CDC.80650
86·4	30	CDC.707	CDC.807
144	50	CDC.708	CDC.808
288	**100**	**CDC.709**	CDC.809
576	200	CDC.710	CDC.810
864	300	CDC.711	CDC.811

*Tolerance: Single encapsulated sources −5%, +20%
Double encapsulated sources −10%, +15%
For definition of equivalent activity, see page E1

Recommended working life: 15 years



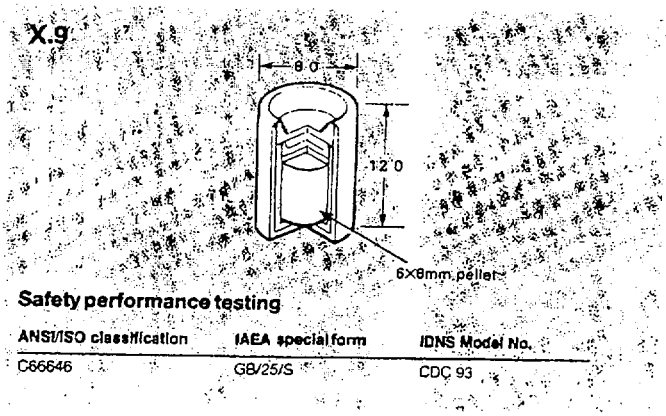
Safety performance testing

Capsule	ANSI/ISO classification	IAEA special form	IDNS Model No.
X7	C66545	GB/23/S	CDC 700
X8	C66546	GB/24/S	CDC 800

Nominal air kerma rate at 1 metre mGy/hr	Nominal equivalent activity* mCi	Double encapsulation Code (X.9)
1·44	500	CDC.90
2·88	1000	CDC.91
5·76	2000	CDC.92
8·64	3000	CDC.93
11·52	4000	CDC.94
14·40	5000	CDC.95

*Tolerance – 10%, +15%
For definition of equivalent activity, see page E1.

Recommended working life: 15 years



Safety performance testing

ANSI/ISO classification	IAEA special form	IDNS Model No.
C66646	GB/25/S	CDC 93

Quality Control

Wipe test A
Bubble test D
Immersion test M

Calibrated sources

Cesium-137 sources, 3mCi-3Ci, 0.11GBq-111GBq, can be supplied calibrated with measured radiation output code H50. Calibration accuracy: ±5% overall uncertainty. Further details on request.

Quality control:
Leakage and Contamination tests, see page D1
A Test Report is supplied with each source or batch of sources.

Safety performance testing, see page F1

Dimensions in mm

Recommended working life, see page F2

Reference GB/167/S-8

Certificate Issue 4

Certificate of Approval of Design for Special Form Radioactive Material

Title
Low Energy Photon Point Source - Capsules X.108
Drawing Nos and Specification References
Assembly: 3A 10830 Issue D Details: 3A 10840 Issue C Special Form Drawing List SFDL/167 Issue 2 Dated 12 May 1999 RSD/CTR/68 Dated January 1975 QA/MS/167/0599 Dated 14 May1999
Q.A. Programme Ref: Nycomed Amersham plc's "Transport Safety Arrangements"

Radioactive Material	Maximum Activity
Americium 241	7.4 GBq

THIS IS TO CERTIFY that the Secretary of State for the Environment, Transport and the Regions being, for the purposes of the Regulations of the International Atomic Energy Agency, the Competent Authority of Great Britain in respect of inland surface transport and of the United Kingdom of Great Britain and Northern Ireland in respect of sea and air transport and the Department of the Environment for Northern Ireland being the Competent Authority of Northern Ireland in respect of inland surface transport, have approved the above mentioned Special Form Design. Radioactive material manufactured to the above-mentioned design qualifies as special form radioactive material and as such will meet the requirements of the regulations overleaf.

This Certificate of Approval applies only to the design as set out in the above named drawings and specifications submitted by Nycomed Amersham plc

In the event of any alteration in the composition of the package, the package design or in any of the facts stated in the application for approval, this certificate will cease to have effect unless the Competent Authority is notified of the alteration and the Competent Authority confirms the certificate notwithstanding the alteration.

This Certificate Cancels all Previous Issues and is valid until 30 June 2002

COMPETENT AUTHORITY IDENTIFICATION MARK: GB/167/S-85

UNITED KINGDOM COMPETENT AUTHORITY FOR THE TRANSPORT
26 MAY 1999
OF RADIOACTIVE MATERIALS

Transport Radiological Adviser
Department of the Environment,
Transport and the Regions
76 Marsham Street
London SW1P 4DR

On behalf of the Secretary of State for the Environment, Transport and the Regions and the Department of the the Environment for Northern Ireland

Americium-241

γ and primary X-ray sources

Point sources

Americium-241 incorporated in a ceramic bead (AMC.21 to AMC.25) or cylindrical ceramic pellet (AMC.10236 and AMC.26), sealed in a welded stainless steel capsule.

Nominal content activity* MBq	mCi	Capsule	Typical photon output in photons/sec per steradian 59·5keV	Code
74	2	X.100	1×10^5	AMC.21
518	14	X.101	7×10^5	AMC.24
1665	45	X.102	$1·8 \times 10^7$	AMC.25
3700	100	X.102	$2·2 \times 10^7$	AMC.10236
7400	200	X.108	$5·5 \times 10^7$	AMC.26

*+15%, −10%

Recommended working life: 15 years

Quality Control

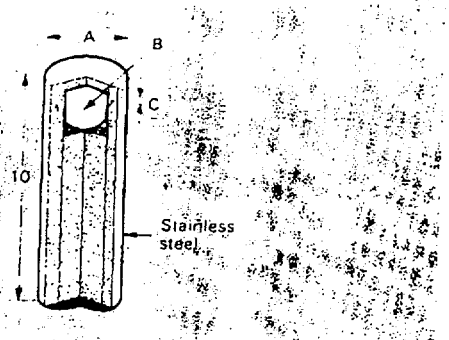
Wipe test A
Bubble test D
Immersion test L

Photon emission and spectral purity checked using Si(Li) and Ge(Li) detectors.

Neutron emission

All Americium-241 sources emit ~10^4 n/sec per Ci due to (α, n) reactions with the low atomic number elements (for example, Si, Al, O) in the active material.
The use of beryllium windows does not increase this emission significantly.

X.100-102,108



Capsule dimensions and Safety performance testing

Capsule	Overall diam. 'A' mm	Active diam. 'B' mm	Window thickness 'C' mm	Safety performance testing ANSI/ISO classification	IAEA special form	JONS Model No.
X.100	2	1	0·2–0·25	C64444	GB/59/S	AMC.21
X.101	3	2	0·2–0·25	C64444	GB/66/S	AMC.24
X.102	4	3	0·2–0·25	C64444	GB/59/S	AMC.25/ AMC.P1
X.108	7	5	0·2–0·3	C64444	GB/167/S	AMC.26

Recommended working life, see page F2

Quality control:
Leakage and Contamination tests, see page D1
A Test Report is supplied with each source or batch of sources

Safety performance testing, see page F1

Attachment #4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

JUN 23 1999

Ref: 8TMS-I

MEMORANDUM

SUBJECT: Designation as Custodial Officer for Area 872
Accountable Area 18

FROM: Debra A. Griffin
Director, Infrastructure Program

TO: Helen Dawson,
EPR-PS

You have been nominated to serve as an EPA Custodial Officer for Area 872 By Charles (Bill) Murray, Supv. Env Prot Spec. Your designation as Custodial Officer is subject to your acceptance and execution of the attached memorandum of assumption. When this memorandum has been signed by you and dated, please return it to the Property Management Office, 8TMS-I Attn: Chris Ayala, for the files.

The basic authorities and responsibilities which you will assume for the EPA system are attached. You will also be required to perform any additional duties relating to personal property management which are or may be assigned to you by proper authority.

Upon acceptance of formal transfer documents, you will be accountable to the Property Accountable Officer or his successor for all personal property in your custodial area for which accountability is prescribed in regulations and instructions. You can be relieved of that accountability only by formal notification following the transfer to and acceptance of accountability by another; or other specific official acts as specified by the Property Accountable Officer.

2 Enclosures

cc: Property Accountable Officer

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999
18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

REVOCABLE LICENSE AGREEMENT

REVOCABLE LICENSE AGREEMENT 99-18-005

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY (Licensor)
999 18th Street, Suite 500
Denver, Colorado 80202-2466

and

Dr. Tissa Illangasekare
AMAX Distinguished Chair
Environmental Science and Engineering Division
Colorado School of Mines
Golden, CO 80401-1887

agree as follows:

1. Licensor will make available to Licensee, by Revocable License Agreement, the property owned by the Licensor, described in Exhibit A attached hereto, under the terms and conditions of this Agreement. The property listed in Exhibit A consists of 6 items having a total dollar acquisition value of $ 95,425 :

2. The property will be made available to the Licensee in its present condition and at its present location without any warranty by the Licensor as to its condition or fitness to use for the purpose hereinafter described.

3. The property is to be used solely for the purpose of public research related to NAPLs in subsurface materials such as are found at Superfund Sites.

4. Licensor reserves the right to terminate this Revocable License Agreement at any time.

5. In consideration for the use of said property, the Licensee agrees to provide copies of research reports generated utilizing the equipment and electronic access to data files and reports.

REVOCABLE LICENSE AGREEMENT-Continued

6. Licensee further agrees to:

a. Use the property for the above stated purpose only.

b. Maintain the property in good operating condition during the period of use, and return it upon termination of this Revocable License Agreement, or when it is no longer needed for the above stated purpose, in as good condition as received, fair wear and tear expected.

c. Bear the expenses of site restoration and transportation charges incurred to and from the Licensee.

d. Promptly notify the Licensor of any loss or theft of the property; investigate and document the full circumstances concerning any loss, theft, damage or destruction of the property where said loss, theft, damage or destruction was caused by the Licensee's negligence. Pay the Licensor the fair depreciated value of the property as of the time the property was last in the Licensee's possession if the property was lost, stolen, or destroyed; or if the property was damaged, to repair or to pay the Licensor the fair cost of repair as the Licensor shall elect

e. Refrain from transferring any rights in the property to any third party and to refrain from allowing any third party to acquire any rights in the property.

f. Hold harmless from, and indemnify Licensor for, any and all claims, judgments or settlements for personal injury, death or property damage to third parties caused by the property or arising out of the Licensee's possession or use of the property.

g. Give suitable notice to the Licensor prior to returning the property.

h. Allow the Licensor or its designated representative access to the property.

7. The Licensee expressly waives claims for compensation for the performance of any of the foregoing provisions of this Revocable License Agreement and understand that the Government is under no obligation whatsoever to provide compensation for any reports or parts thereof or any other information that may be furnished by the Licensee; and the Government is under no obligation with respect to the award of future contracts.

REVOCABLE LICENSE AGREEMENT-Continued

8. This Revocable License Agreement is subject to Title VI of the Civil Rights Act of 1964, as amended, 42 USC 2000a et. seq., which provides that no person in the United States shall on the grounds of race, color, or national origin be excluded from participation, be denied the benefits of or be subject to discrimination under any program receiving Federal financial assistance, as implemented by regulations issued thereunder. This Revocable License Agreement is also subject to the Rehabilitation Act of 1973, as amended,29 USC 794, which provides that no otherwise qualified handicapped individual in the United States, shall, solely by reason of his handicap, be excluded from participation in, be denied the benefits of or be subjected to discrimination under any program or activity receiving Federal financial assistance. Additional, this Revocable License Agreement is subject to Title IX of the Educational Amendments of 1972,20 USC 1681 et. seq., which provides that no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance.

9. The licensee agrees not to alter or modify the property listed herein without prior written concurrence of the EPA official approving this Agreement.

10. The period of this Revocable License Agreement, unless earlier terminated pursuant to the terms of the Agreement, shall be 60 months from the date the License desires to extend or renew the period of this Agreement, the Project Officer shall give notice of such fact to the EPA approving official, and the reason therefore, not less than 30 days prior to the termination of the Revocable License Agreement period.

For Licensee:	For United States of America Environmental Protection Agency:
By: [signature]	By: Patricia D. Haee
Title: BMAx Distinguished chair	Title: ARA
Date: June 29, 1999	Date: 8-18-99

* * * * * * * * * * *

REVOCABLE LICENSE AGREEMENT - Continued

Property Returned:

The property described in this Revocable License Agreement was returned by the Licensee and accepted as being in proper condition on _____.

By: _____

Title: _____

EXHIBIT A

Revocable License Agreement 99-18-005
(Number)

ITEM No._1__	EPA ID NUMBER:	802989
	DESCRIPTION:	X-Z Gamma Positioner (Note: the source has been removed)
	MFG. NAME:	Fabricated
	MFG. MODEL:	None
	MFG. SERIAL:	None
	CONDITION CODE:	4
	ACQUISITION COST:	$75,000
ITEM No._2__	EPA ID NUMBER:	784770
	DESCRIPTION:	Gamma Counter
	MFG. NAME:	EG&G Ortec
	MFG. MODEL:	4001M
	MFG. SERIAL:	1092
	CONDITION CODE:	4
	ACQUISITION COST:	$9,288
ITEM No._3__	EPA ID NUMBER:	160403
	DESCRIPTION:	Data Module
	MFG. NAME:	Waters
	MFG. MODEL:	730
	MFG. SERIAL:	1757-3750
	CONDITION CODE:	4
	ACQUISITION COST:	$4,888
ITEM No._4__	EPA ID NUMBER:	400251
	DESCRIPTION:	IBM Computer
	MFG. NAME:	IBM
	MFG. MODEL:	AT
	MFG. SERIAL:	007315007
	CONDITION CODE:	4
	ACQUISITION COST:	$2,757
ITEM No._5__	EPA ID NUMBER:	784571
	DESCRIPTION:	AST Computer
	MFG. NAME:	AST
	MFG. MODEL:	45
	MFG. SERIAL:	USP4002025
	CONDITION CODE:	4
	ACQUISITION COST:	$2,988
ITEM No._6__	EPA ID NUMBER:	784574
	DESCRIPTION:	Color VGA Monitor

MFG. NAME:	AST
MFG. MODEL:	ASTCVGA
MFG. SERIAL:	4U016884
CONDITION CODE:	4
ACQUISITION COST:	$504

condition codes: 1-unused/good 2-unused/fair 3-unused/poor
4-used/good 5-used/fair 6-used/poor

Renae Cochran

Attachment #5

PROPERTY RECEIPT AND TRANSFER DOCUMENT

(See instructions on reverse)

1. VOUCHER NO.

2. NATURE OF, AND AUTHORITY FOR, ACTION
Transfer of property from AA05 to AA18

3. NAME AND ADDRESS OF ISSUING STATION
US EPA
26 W. Martin Luther King Dr.
Cincinnati, Ohio 45268

4. DISPOSING			5. RECEIVING		
A. ACCOUNTABLE AREA NO.	B. DATE INVOICED AND DROPPED	C. PROP. DOC. NO.	A. ACCOUNTABLE AREA NO.	B. DATE RECEIVED	C. PROP. DOC. NO.
AA05	6/21/99	99-102	AA18		

D. CUSTODIAL AREA TO BE CREDITED	D. CUSTODIAL AREA TO BE CHARGED
Area 228 - Ada, OK	Area 800
E. SIGNATURE OF CUSTODIAL OFFICER: See attached	E. SIGNATURE OF CUSTODIAL OFFICER
F. SIGNATURE OF PROPERTY MANAGEMENT OFFICER: Chris Hutcherson Chris Hutcherson	F. SIGNATURE OF PROPERTY MANAGEMENT OFFICER

6. SHIPPING DATA		7. RECEIVING DATA	
A. BILL OF LADING NO.	B. DATE	A. CHECK ONE AND EXPLAIN ON REVERSE: ☐ REJECTED ☐ SHORT ☐ OTHER	
C. CARRIER OR METHOD OF SHIPMENT		B. ☐ ACCEPTED ☐ PARTIAL DELIVERY	
D. NO. OF PKGS	E. POSTAGE / F. TOTAL WEIGHT	C. RECEIVED BY	D. DATE

8. PROPERTY OR SERVICE

LINE OR STOCK NO. A.	DESCRIPTION OF PROPERTY OR SERVICE (Show property numbers where appropriate) B.	QUANTITY C.	UNIT D.	UNIT COST E.	TOTAL AMOUNT F.
784770	Gamma Counter				$ 9,288.00
802989	X-Z Gamma Positioner				$75,000.00
	ADDITIONAL INFORMATION ON ITEMS LISTED ABOVE ON ATTACHED SHEET				
	Non-Accountable Items (Not in Property System)				
160403	Data Module				$ 4,888.00
400251	IBM Computer				$ 2,757.00
784571	AST Computer				$ 2,988.00
784574	Color VGA Monitor				$ 504.00

A 227 784770
DOC ID A 227 802989
784770
DECAL NO 802989 BET NO —
ACCT AREA 05 CUST. AREA 228
SIGNATURE

accepted
2/23/2000

9. A. SIGNATURE OF PROPERTY MANAGEMENT OFFICER | B. DATE

10. ACKNOWLEDGMENT OF RECEIPT OUTSIDE EPA

A. NAME AND ADDRESS OF TRANSFEREE AGENCY, PURCHASER, DONEE, ETC.	B. SIGNATURE OF CONSIGNEE OR AGENCY	
	C. TITLE	D. DATE

11. POSTING DATA *(Use if applicable)*

A. STOCK CONTROL	MEMO ASSET ACCOUNT	COST ACCOUNTING

EPA Form 1700-7 (10-74) REPLACES EPA FORM 1770-17 (1-72) WHICH MAY BE USED UNTIL SUPPLY IS EXHAUSTED

PAGE OF PAGES

90502499

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
National Risk Management Research Laboratory
P.O. Box 1198, 919 Kerr Research Drive
Ada, OK 74820

Subsurface Protection and
Remediation Division
Safety, Health and Environmental
Management Office

FACSIMILE TRANSMITTAL SHEET

FAX Phone: 580-436-8506	*Verification Phone:* 580-436-8565
Date: December 14, 2000	Total Pages: 12 (Including Cover Sheet)
To: Ajagar Bhachu Nuclear Regulatory Commission, Headquarters TEL: 301-415-7814	FAX: 301-415-5369
From: Garmon Smith	Phone: 580-436-8565

Message: Please find attached a copy of the NRC Form 313 with associated letter requesting the removal of the fixed moisture density gauge from our materials license and our license amendment #17 dated April 25, 2000 that shows the fixed moisture density gauge and its sources no longer part of our license.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
SUBSURFACE PROTECTION AND REMEDIATION DIVISION
P.O. BOX 1198 • ADA, OK 74820

February 4, 2000

OFFICE OF
RESEARCH AND DEVELOPMENT

Materials Licensing Branch
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-8064

Dear Sirs:

Enclosed is NRC Form 313 requesting the amending of NRC license #35-11581-02 for the Robert S. Kerr Environmental Research Center. We have several issues that need to be addressed in this amendment request due to recent equipment changes and an inspection by the NRC.

On January 12, 2000 we shipped the gamma source shield component of the Centergy Technologies, Inc. fixed moisture density gauge (Registry #NR-162-D-101-S) to the Colorado School of Mines, Golden, CO. The shipment was delivered on January 13, 2000 at 10:04 AM to Mr. John Elliott of the Colorado School of Mines. The gamma source shield component contains a Cesium-137 100 mCi source (Amersham CDC.709) and an Americium-241 200 mCi source (Amersham AMC.26). The fixed moisture density gauge had been shipped earlier to the Colorado School of Mines without the source shield component. All shipping was done according to required U.S. DOT regulations. The two sources mentioned are now covered by Colorado license #627-01 under the supervision of Dr. Tissa Illangasekare. We request that the two sources listed above be removed from our NRC license.

Upon adding this gauge to our license (Amendment#13, dated July 29,1993) we instituted a couple of management controls for the safe use of this device. In the letter dated July 8, 1993 we stated that the gauge would be used only in Room 9 at the Robert S. Kerr Environmental Research Center, which would remained locked at all times, and that all individuals entering the room must wear TLD badges, which would be monitored on a quarterly basis. Since the gauge is no longer resident at this location we request that these two conditions of Room 9 be eliminated. All other sealed sources located in this room are locked in appropriate containers as required by our license.

We also request an amendment to our license to cover a long term condition of sealed source material 6.H. relating to an old neutron probe (Model PL-AmBe manufactured by Parkwell Laboratories, NRC registry #NR-532-S-101-U) that we have had since the facility was in business. The soil moisture logger that this probe was associated with is no longer in our possession, and there is no other gauging equipment here that could use this probe. We would like to dispose of this source, however the lack of documentation showing who manufactured the

Americium-241 source, and the fact that Parkwell Laboratories is out of business, makes for a difficult situation. In discussions with AEA Technology Nuclear Science, it was determined that without knowledge that Amersham manufactured the source, they could not handle disposal of the source for us. The only markings on the probe show a Model PL-AmBE and number 5376. The probe is stored in a 5-gallon metal bucket containing paraffin with a tube the size of the probe in the center of the bucket. The bucket is contained within a wooden box which is locked at the top. We have continued to perform leak tests on this probe every six months and have found no problems with it. We would like to request the assistance of the NRC in helping us to find a means of disposing of this neutron probe and locating it at a more appropriate location.

In our last amendment request, dated August 18, 1998, we submitted to the NRC a copy of a radiation safety plan for a project using Phosphorus-32, in which we indicated that TLD badges for those involved in that work would be changed monthly. The badge program managed by our agency, U.S. Environmental Protection Agency, will no longer supply TLD badges on a monthly basis starting April 1, 2000. Therefore, we request that any individuals involved in research projects using P-32 be monitored on a quarterly rather than a monthly basis. We will also, upon your concurrence with this request, change our local Standard Operating Procedures RSKSOP-117 to reflect the monitoring of individuals working with high-energy Beta-emitting isotopes on a quarterly exchange program instead of the present monthly program.

There are also a couple of other minor changes that need to be made to the materials license including 12.G. where analysis by ICN Pharmaceuticals, Inc. be changed to SUNTRAC Services, Inc., and 14.B. where the name of Alvin Wood should be changed to Garmon Smith and/or Tony Lee.

If further information is required for this license application, please direct your questions to Garmon Smith, Radiation Safety Officer, at 580-436-8565. Thank you for your help and consideration to our requests.

Sincerely,

Clinton W. Hall

Clinton W. Hall
Director, SPRD

cc: Garmon B. Smith
Stephen G. Schmelling
Roger L. Cosby
Robert W. Puls
A. Lynn Wood
Tony R. Lee
NRC file

Exhibit A

NRC FORM 313 (7-89) 10 CFR 30, 32, 33 34, 35, 36, 39 and 40

U. S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0120 EXPIRES: 7/31/89

Estimated burden per response to comply with this information collection request: 7 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Forward comments regarding burden estimate to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0120), Office of Management and Budget, Washington, DC 20503. NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET, NW, SUITE 2900
ATLANTA, GA 30323-0199

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
801 WARRENVILLE RD.
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)
   - [ ] A. NEW LICENSE
   - [X] B. AMENDMENT TO LICENSE NUMBER 35-11581-02
   - [ ] C. RENEWAL OF LICENSE NUMBER

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip code)
U.S. Environmental Protection Agency
Robert s. Kerr Environmental Research Center
919 Kerr Research Drive, P.O. Box 1198
Ada, Oklahoma 74820

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED
SAME AS ITEM 2

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION
Garmon B. Smith, Jr.

TELEPHONE NUMBER
580-436-8565

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL.
a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time. See Attachment

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.
See Attachment

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE. N/A

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.
N/A

9. FACILITIES AND EQUIPMENT. N/A

10. RADIATION SAFETY PROGRAM.
See body of letter

11. WASTE MANAGEMENT.
N/A

12. LICENSING FEES (See 10 CFR 170 and Section 170.31)
FEE CATEGORY N/A
AMOUNT ENCLOSED $

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39 AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER – TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
Clinton W. Hall, Director, SPRD	Clinton W. Hall	02/04/00

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED $	CHECK NUMBER	COMMENTS
APPROVED BY				DATE	

NRC FORM 313 (7-89) PRINTED ON RECYCLED PAPER

Attachment

Item #5 for Deletion of Transferred Radioactive Material

Amend part 6 of the license to delete "L. Cesium-137".

Amend part 6 of the license to delete "M. Americium-241".

Amend part 9 of the license to delete "L. And M. For use in Centergy Technologies, Inc. Model EPA91197 custom fixed moisture density gauge for determination of physical properties and chemical composition of materials."

Amend part 10 of the license to delete "C. Licensed materials in Items 6.L. and 6.M. shall be used only in Room 9 of the Robert S. Kerr Environmental Research Center, 919 Kerr Research Drive, Ada, Oklahoma."

Item #6 for Change in the Use of Neutron Probe Containing Americium-241

Amend part 6 of the license to indicate that under "H. Americium-241," that an **excess** Parkwell Laboratories Model PL-AmBe neutron probe, containing 100 mCi Americium-241, is no longer associated with any on-site compatible portable gauging device.

Amend part 9 of the license to indicate that under "G. And H." the Parkwell Laboratories Model PL-AmBe neutron probe is not to be used without interfacing to an appropriate portable gauging device.

Amend part 10 of the license to state that the Parkwell Laboratories Model PL-AmBe neutron probe is not to be used at temporary job sites unless interfaced to an appropriate portable gauging device.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

April 25, 2000

U.S. Environmental Protection Agency
Robert S. Kerr Environmental Research Center
ATTN: Clinton W. Hall
Director, SPRD
919 Kerr Research Drive
P.O. Box 1198
Ada, Oklahoma 74820

SUBJECT: LICENSE AMENDMENT

Please find enclosed Amendment No. 17 to License No. 35-11581-02. You should review this license carefully and be sure that you understand all conditions. Concerning the disposal of your Americium-241 neutron probe, we are enclosing some information on the disposal of radioactive waste. This information was compiled by the Conference of Radiation Control Program Directors and although somewhat dated, may contain useful information. The listing of these individuals and companies should not be considered an endorsement and is provided to assist you as requested. We also recommend you contact the North Texas Chapter of the Health Physics Society for further information regarding disposal of Americium sources. If you have any questions, please contact me at 925-673-0112.

NRC expects licensees to conduct their programs with meticulous attention to detail and a high standard of compliance. Because of the serious consequences to employees and the public that can result from failure to comply with NRC requirements, you must conduct your radiation safety program according to the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate by NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.

2. Notify NRC in writing of any change in mailing address.

3. By 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license:
   a. When you decide to terminate all activities involving materials authorized under the license; or
   b. If you decide not to complete the facility, acquire equipment, or possess and use authorized material.

4. Request and obtain a license amendment before you:
   a. Change Radiation Safety Officers;
   b. Order byproduct material more than the amount or form authorized on the license;
   c. Add or change the areas or address(es) of use identified in the license application or on the license; or

d. Change the name or ownership of your organization.

5. Submit a complete renewal application or termination request at least 30 days before the expiration date on your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of radioactive material after your license expires is a violation of NRC regulations.

In addition, please note that NRC Form 313 requires the applicant, by signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

NRC will periodically inspect your radiation safety program. Failure to conduct your program according to NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC may result in enforcement action against you. This could include issuance of a notice of violation; imposition of a civil penalty; or an order suspending, modifying, or revoking your license as specified in the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG 1600.

Thank you for your cooperation.

Sincerely,

James L Montgomery

James L. Montgomery, Sr. Health Physicist
Nuclear Materials Licensing Branch

Docket: 030-09517
License: 35-11581-02
Control: 467764

Enclosures: As stated

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Amendment No. 17

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	In accordance with letters dated February 4 and March 15, 2000
1. U.S. Environmental Protection Agency Robert S. Kerr Environmental Research Center 2. 919 Kerr Research Drive P.O. Box 1198 Ada, Oklahoma 74820	3. License number 35-11581-02 is amended in its entirety to read as follows: 4. Expiration date March 31, 2003 5. Docket No. 03009517 Reference No.

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Calcium-45	A. Any	A. 2 millicuries
B. Carbon-14	B. Any	B. 15 millicuries
C. Chlorine-36	C. Any	C. 2 millicuries
D. Hydrogen-3	D. Any	D. 5 millicuries
E. Iron-59	E. Any	E. 10 millicuries
F. Phosphorus-32	F. Any	F. 5 millicuries
G. Cesium-137	G. Sealed sources registered either with NRC under 10 CFR 32.210 or with an Agreement State and incorporated in a compatible portable gauging device as specified in Item 9 of this license	G. No single source to exceed the maximum activity specified in the certificate of registration issued by NRC or an Agreement State
H. Americium-241	H. Sealed neutron sources registered either with NRC under 10 CFR 32.210 or with an Agreement State and incorporated in a compatible portable gauging device as specified in Item 9 of the license	H. No single source to exceed the maximum activity specified in the certificate of registration issued by NRC or an Agreement State
I. Cobalt-60	I. Sealed sources (Tracerlab Model R-31)	I. Not to exceed 5 millicuries per source

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6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
J. Hydrogen-3	J. Foil in detector cells	J. Not to exceed 250 millicuries per foil
K. Nickel-63	K. Foil in plated sources contained in detector cells	K. Not to exceed 15 millicuries per foil or plated source

9. Authorized use

A. through F.	For use in laboratory studies.
G.	To be used, for measuring physical properties of materials, in portable gauging devices that have been registered either with NRC under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with an NRC or Agreement State specific license authorizing distribution to persons specifically authorized by an NRC or Agreement State license to receive, possess, and use the devices.
H.	Storage incident to disposal.
I.	For use in the calibration of instruments and training of personnel.
J. and K.	For use in gas chromatographs for sample analysis.

CONDITIONS

10. A. Licensed material in Items 6 A.-6.F. and Items 6.I.-6.K. shall be used only at the licensee's facility located at the Robert S. Kerr Environmental Research Center, 919 Kerr Research Drive, Ada, Oklahoma.

B. Licensed material in Items 6.G. and 6.I. may be used at temporary job sites of the licensee anywhere in the United States.

11. A. Licensed material shall be used by, or under the supervision of, Garmon B. Smith.

B. The Radiation Safety Officer for this license is Garmon B. Smith.

12. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.

B. Notwithstanding Paragraph A of this Condition, sealed sources and detector cells designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.

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C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources need not be leak tested if:

(I) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source shall be removed immediately from service

and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, ATTN: Director, Division of Nuclear Materials Safety. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

G. The licensee is authorized to collect leak test samples for analysis by SUNTRAC Services, Inc. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in 10 CFR 20.203(a)(1), the licensee is hereby authorized to label detector cells, containing

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licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols.

14. A. Maintenance, repair, cleaning, replacement, and disposal of foils contained in detector cells shall be performed only by the device manufacturer or other persons specifically authorized by the Commission or an Agreement State to perform such services.

B. Installation, initial radiation survey, relocation, removal from service, maintenance, and repair of devices containing sealed sources shall be performed by Garmon Smith, Alvin Wood, or by persons specifically licensed by the Commission or an Agreement State to perform such services. Installation, replacement, and disposal of sealed sources shall be performed only by persons specifically licensed by the Commission or an Agreement State to perform such services.

15. Each gauge shall be tested for the proper operation of the on-off mechanism and indicator, if any, at no longer than 6-month intervals or at such longer intervals as specified by the manufacturer and approved by U.S. Nuclear Regulatory Commission.

3. Prior to initial use and after installation, relocation, dismantling, alignment, or any other activity involving the source or removal of the shielding, the licensee shall assure that a radiological survey is performed to determine radiation levels in accessible areas around, above, and below the gauge with the shutter open.
This survey shall be performed only by persons authorized to perform such services by the Commission or an Agreement State. A record of the results of this survey shall be maintained for the duration of the license.

17. The licensee shall operate each gauge within the manufacturer's specified temperature and/or environmental limits such that the shielding and shutter mechanism of the source holder are not compromised.

18. The licensee shall assure that the shutter mechanism is locked in the closed position during periods when a portion of an individual's body may be subject to the direct radiation beam. The licensee shall review and modify as appropriate its "lock-out" procedures whenever a new gauge is obtained to incorporate the device manufacturer's recommendations.

19. A. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents the foil temperature from exceeding that specified by the manufacturer and approved by U.S. Nuclear Regulatory Commission.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

. A. Each sealed source containing licensed material to be used outside of a shielded exposure device shall have a durable, legible, and visible tag permanently attached by a durable ring. The tag shall be at least 1 inch square, shall bear a conventional radiation symbol prescribed in 10 CFR 20.203(a)

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and a minimum of the following instructions: DANGER - RADIOACTIVE MATERIAL - DO NOT HANDLE - NOTIFY CIVIL AUTHORITIES IF FOUND.

B. Replacement of tags and rings shall be carried out by the licensee in accordance with instructions contained in procedures provided by the Federal Emergency Management Agency.

21. Each portable nuclear gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The gauge or its container must be locked when in transport, storage, or when not under the direct surveillance of an authorized user.

22. Any cleaning, maintenance, or repair of the gauge(s) that requires removal of the source rod shall be performed only by the manufacturer or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

23. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days for decay-in-storage before disposal in ordinary trash provided:

A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

B. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate meter set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. A record of each disposal permitted under this License Condition shall be retained for 3 years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

24. The licensee shall not store licensed material contained in waste for more than 2 years from the date the waste is put into storage. The licensee shall maintain records which indicate the date that licensed material contained in waste is put into storage.

25. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

26. Licensed material shall not be used in or on human beings.

Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

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28. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 5 years from the date of each inventory, and shall include the quantities and kinds of byproduct material, manufacturer's name and model numbers, location of the sources and/or devices, and the date of the inventory.

29. The licensee shall not acquire licensed material in a sealed source or device that contains a sealed source unless the source or device has been registered with the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State.

30. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.

31. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

    A. Application dated November 13, 1991
    B. Application dated December 9, 1992
    C. Letter dated February 11, 1993
    D. Letter dated February 23, 1993
    E. Letter dated July 13, 1992
    F. Letter dated October 2, 1995
    G. Letter dated August 18, 1998
    H. Letter dated February 4, 2000
    I. Letter dated March 15, 2000

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date APR 25 2000

By James L. Montgomery
James L. Montgomery
Nuclear Materials Licensing Branch
Region IV
Arlington, Texas 76011

From: Ujagar Bhachu
To: Internet:smith.garmon@epa.gov.
Date: Wed, Nov 15, 2000 1:30 PM
Subject: Request For Inactivation OF REGISTRATION CERTIFICATE NR-0162-d-101-S

REFERENCE CASE 00-46

Hi Garmon: As discussed with you please provide the following information:

1. Please read very carefully Section 13.4 , of NRC report NUREG 1556 Vol. 3, and provide the applicable information.

2. Please provide a copy of the documents transferred to Colorado School of Mines, Golden, Colorado, such as details of the system hardware and background information related to your commitment to NRC through your application and subsequent submissions (technical specifications , analysis, installation, operational, maintenance and device leak testing procedures etc.)

3. Please provide details and date of the title transfer and the relationship between EPA and Colorado School Of Mines, Golden, Colorado.

4. Has State of Colorado issued a registration certificate for this custom product to Colorado School of Mines, Golden. Colorado?

Please provide this information with in 30 days from the date of this communication.

If you have any questions please call me at (301) 415-7894.

Ujagar Bhachu

CC: Frederick Sturz, John Jankovich, Traci Kime

NRC FORM 567
(1-1999)

U.S. NUCLEAR REGULATORY COMMISSION

REQUEST FOR A SEALED SOURCE OR DEVICE EVALUATION

INSTRUCTIONS: Send this rerquest AND a copy of all related letters/applications and drawings to the Chief, Sealed Source Safety Section, OWFN Mail Stop O-6 H3. Change the License Tracking System milestone to 19 and assign to reviewer code 1-5.
NOTE: Retain a copy of this request with the application and background files.

REQUESTER	REGION/LOCATION:
US Environmental Protection Agency	☐ I ☐ II ☐ III ☐ IV ☐ HQ ☐ LFARB
TELEPHONE NUMBER / DATE	TYPE OF ACTION REQUESTED *(Check as appropriate)*
NAME OF APPLICANT: **Garmon Smith**	☐ SOURCE REVIEW ☑ AMENDMENT OF REGISTRATION SHEET NUMBER(S)
MAIL CONTROL NUMBER(S)	☐ DEVICE REVIEW
LETTER/APPLICATION DATE: **06/15/2000** / LICENSE NUMBER(S)	☐ CUSTOM REVIEW **NR-162-D-101-S**

COMMENTS:
P.O. Box 1198
Ada, OK 74820

FOR SSSS USE ONLY

REVIEWER	MODEL NUMBERS	NUMBER ASSIGNED
J. Jankovich	**EPA91197**	**00-46**
DATE RECEIVED	**DATE ASSIGNED**	**DATE TO FEES**
11/01/2000	**11/01/2000**	**11/01/2000**

TYPE OF ACTION *(Indicate the number of each type)*

☑ COMMERCIAL DISTRIBUTION (FORMAL) ☐ USE BY A SINGLE APPLICANT (CUSTOM)

SOURCE (9C)	DEVICE (9A)	SOURCE (9D)	DEVICE (9B)
☐ NEW	☐ NEW	☐ NEW	☐ NEW
☐ AMENDMENT	☑ AMENDMENT	☐ AMENDMENT	☐ AMENDMENT

☐ NO SAFETY EVALUATION REQUIRED
NO FEES REQUIRED

☐ LICENSING ACTION REQUIRED (IF KNOWN) ☐ YES ☐ NO

☐ OTHER *(Specify)*

	TOTAL NUMBER OF REVIEW HOURS	NOTES: **Request to make NR-162-D-101-S inactive.**
	NUMBER OF DEFICIENCY LETTERS	
	NUMBER OF DEFICIENCY CALLS	

FOR FEE USE ONLY

TYPE OF FEE	FEE CATEGORY			
	☐ 9A	☐ 9B	☐ 9C	☐ 9D

AMOUNT RECEIVED	CHECK NUMBER	DATE OF CHECK	LOG

APPROVED BY	DATE OF RETURN

COMMENTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
SUBSURFACE PROTECTION AND REMEDIATION DIVISION
P.O. BOX 1198 • ADA, OK 74820

June 15, 2000

OFFICE OF
RESEARCH AND DEVELOPMENT

U.S. Nuclear Regulatory Commission
Materials Safety and Inspection Branch
Division of Industrial and Medical Nuclear Safety
Office of Nuclear Material Safety and Safeguards
Washington, DC 20555

SUBJECT: Source registration #NR0162D101S

Dear Sirs:

AS

In December, 1999 we transferred to the Colorado School of Mines, Golden, Colorado (materials license #Colorado627-01, Amendment #29), a Centergy Technologies, Inc. fixed moisture density gauge. This gauge contained two radioactive sources, a Cesium-137 gamma source and an Americium-241 neutron source contained within a source shield component. The installation and use of this density gauge constituted the issuance of the registration referred to above. At this time we wish to request inactivation of this registration so that fees are no longer charged for an instrument containing radioactive sources we no longer possess. We understand that due to this late request for inactivation within this fiscal year, we are required to pay the present invoice due this month. Payment of the invoice has been initiated through our facility's financial office.

If there is any additional information required to inactivate this registration, please contact me at 580-436-8565 or via e-mail at smith.garmon@epa.gov. Please provide notification of registration inactivation when it becomes effective. Thank you for your prompt consideration and time to this request.

Sincerely,

Garmon B. Smith, RSO
Technical & Administrative Support
Staff

cc: Sandra Kimberly
U.S. Nuclear Regulatory Commission
MST-9E10
Washington, DC 20555

7/4/06

NMSS/02 prop

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